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ABSTRACT

This study was the third in a series, and its primary objective was the identification and description of successful compensatory educational programs for disadvantaged children. Programs were considered successful if they demonstrated cognitive benefits that were statistically and educationally significant. The second objective of this study was to determine the state-of-the-art in noncognitive benefit assessment based on a review of affective and social benefit evaluations of successful programs. After many evaluation reports were reviewed and site visits made, several programs were identified as successful and were then subject to closer analysis. The study concludes that very few compensatory education programs have clearly demonstrated success. Clearly, improvements must be made in program evaluation before the effectiveness of such programs can be fairly assessed. Descriptions and analyses of some successful programs are included. (Author/JW)

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FINAL REPORT

Contract No. OEC-0-70-5016

FURTHER EXAMINATION OF EXEMPLARY PROGRAMS FOR EDUCATING DISADVANTAGED CHILDREN

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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SUMMARY

Further Examination of Exemplary Programs for Educating Disadvantaged Children

This study was the third in a series conducted by AIR for the U. S. Office of Education (USOE) which had as its primary objective the identification and description of successful compensatory education programs for disadvantaged children (cf: Hawkridge, Chalupsky, & Roberts, 1968; Hawkridge, Campeau, DeWitt, & Trickett, 1969). Programs were considered successful if they demonstrated cognitive benefits that were statistically and educationally significant. A detailed description of each identified success was prepared for publication in USOE's It Works series of pamphlets which describe model compensatory education programs for disadvantaged children. Program descriptions were designed to inform educators about successful programs and to provide them with sufficient information to decide if locally modified replications would be desirable.

The second objective of this study was to determine the state-of-the-art in noncognitive benefit assessment based on a review of successful programs' affective and social benefit evaluations. Similarly, the budgets of successful programs were reviewed in an attempt to develop a simple index for cost-benefit comparisons.

Finally, the current status of the 31 successful programs identified by the two earlier studies in this series was determined. Available information about each program was collected and summarized in the form of a program profile. New evaluation and follow-up data were also analyzed in an attempt to determine which programs continue to be successful.

Execution

Briefly, any pre-college compensatory education program for disadvantaged children conducted within the United States, its possessions or territories, that published evaluation data since 1 January 1968 which indicated that the program produced cognitive benefits that were statistically and educationally significant, was considered a candidate program for further review. The statistical significance criterion required that, on the basis of appropriate statistical tests, treatment gains and/or differences favoring program children occur by chance at a probability level of five percent or less. Educational significance was defined as ability or achievement test gains greater than expected or observed for "average" children during a comparable period of time in a regular classroom. The remainder of the criteria specified minimum acceptable standards for evaluation methodology and were similar to those used to evaluate educational research in general.

Candidate programs were identified by a search of USOE's Education Resources Information Center (ERIC) and the solicitation of nominations from USOE supported Research and Development Centers, Regional Educational

Laboratories, and the National Laboratory on Early Childhood Education. Additional sources contacted for nominations included all State Departments of Education and professional associates in and outside of USOE.

The individual or agency thought to be most closely associated with each candidate program was sent a letter that described the objectives of the study, detailed the means and sources used to identify their program, and requested all relevant program evaluation information. All obtained information was subjected to an in-depth analysis by at least two members of the project staff. All programs that met most of the criteria were site visited in order to clarify evaluation questions and obtain information necessary for program description.

When site visits were completed, all newly acquired information was reviewed to determine if the visited programs continued to meet criteria. Program descriptions for each program that passed final review were then completed. Each program description consisted of an introductory overview; a program description section that dealt with the program's context and objectives, history, need assessment activity, personnel, methodology, budget; and an evaluation section that detailed the methodology and results of all program evaluations. References for evaluation and narrative reports, addresses of program and evaluation directors, and materials and equipment sources were also cited.

In addition to the description which summarized cognitive and noncognitive evaluation results for each program, noncognitive evaluation methodologies and results across the successful programs were reviewed. On the basis of that review an estimate of the state-of-the-art in noncognitive evaluation was made in terms of objectives, instrumentation, methodology, and results.

The budgets of each of the successful programs were also reviewed in an attempt to develop a common basis for relative between-program cost-benefit comparisons. Since no special reporting format was imposed on the programs, the obtained budget information and per-pupil cost estimates varied considerably between programs. The obtained figures were examined in terms of common cost categories to determine their usefulness for deriving a simple index of cost effectiveness.

The 31 successful compensatory education programs identified by the two previous studies in this series were contacted in an attempt to obtain information relevant to their current status. Program directors were initially contacted by mail and later by phone. Information was obtained in regard to whether or not they were still in operation, what modifications had been made since their description in the It Works series, and what new evaluation or follow-up data were available. Program directors were also asked for the names and addresses of people that were known to be replicating their original program.

The obtained information was reviewed and summarized in the form of a program profile. These profiles described the current status of each program in terms of history, methodology, evaluation, and follow-up. A conclusion was also drawn with regard to the continued success or eventual failure of each program. In addition to the individual program summaries, the current status of the 31 successes was summarized across, between, and within grade-level categories.

Results

Well over 1,200 evaluation reports were reviewed to identify candidate successful programs. Four hundred and twenty-two candidates were identified on the basis of the initial review and all of those programs were contacted for more information. More detailed information was obtained for 326 programs or 77.2 percent of the candidates. In-depth analysis of all available data resulted in the identification of 10 programs that met the majority of the project's established criteria for success. The remaining 316 programs (96.9 percent) were rejected for failing to meet one or more of the criteria for successful programs. The four primary reasons for rejection were (1) inadequate sample selection, (2) failure to employ reliable and valid instruments, and (3) failure to demonstrate statistically, and (4) educationally significant cognitive benefits.

In terms of the noncognitive benefits associated with the successful programs, all 10 programs were found to have noncognitive objectives but only 8 of the 10 reported noncognitive evaluations. Analysis of those evaluations indicated that only two programs could clearly demonstrate noncognitive benefits. This state of affairs apparently resulted from the paucity of relevant noncognitive tests available, the often inadequate evaluation models employed, and the lack of agreement as to what constitutes a significant noncognitive benefit.

Review of successful program budgets led to the conclusion that although adequate measures of program effectiveness could be determined for each program, the diversity and inaccuracy of available cost information obviated the development of a reliable cost-benefit index. On the basis of the results of this analysis, several recommendations were made which, if implemented, would permit the development of a simple cost-benefit index by which programs could be compared.

The current status of each of the 31 previously identified successes was summarized in a program profile. Most of these programs were found to be still in operation, about half reported either expansion or reduction of services, and replications at other sites were reported by almost half of the program directors. Recent evaluation data upon which conclusions could be drawn were available for only 14 of the 31 programs. On the basis of these data, only 9 programs were determined to be continued successes.

Interpretations and Implications

This study confirmed the conclusion of the earlier two studies in the series, namely that very few compensatory education programs for disadvantaged children have clearly demonstrated success. Only 3.1 percent of the 326 candidate programs that provided detailed evaluation information were found to meet the study's criteria for success.

It should be pointed out that most of the programs rejected during this study were not rejected because they were demonstrated failures, but rather because their evaluation methodology was so inadequate that a conclusion about success or failure could not be drawn. Clearly, improvements must be made in program evaluation before the effectiveness of compensatory education programs can be fairly assessed.

On the basis of the review of the noncognitive evaluations associated with the successful programs, the state-of-the-art in that area appears even more primitive than in the area of cognitive benefit evaluation. Few valid and reliable testing instruments are available, evaluation methodology is often slipshod, and there is little agreement as to the degree of benefit that is educationally significant. Clearly, considerable effort in instrument development, methodology improvement, and cognitive benefit definition will be required before there can be a significant improvement in the state-of-the-art.

Review of the budgets of successful programs indicated that there is too little standardization of accounting procedures and budget reporting to permit development of even a simple cost-benefit index. Until local, state, and federal agencies can establish budget reporting guidelines, educators who must select from among alternative program designs will not have reliable cost information on which to base decisions.

The products resulting from the tasks associated with the first objective of this study -- identification of new successes -- and the fourth objective -- determination of the current status of previously identified successes -- provide, in combination, a complete summary of all programs that have been found to be successful since 1963, the first year covered by the initial study in this series. Under one cover, then, educators are provided with descriptions of 41 model educational programs that have demonstrated some successes in helping disadvantaged children overcome their academic handicaps.

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INTRODUCTION

Background and Objectives

This study is the third in a series conducted by the American Institutes for Research (AIR) under the sponsorship of the U. S. Office of Education (USOE). It has as its primary objective the identification of successful compensatory education programs for disadvantaged children. As in the two earlier studies,[1] any compensatory education program for disadvantaged children, serving one or more grade levels from preschool through senior high school, that appeared to produce cognitive benefits was considered. Candidate programs were identified on the basis of a literature search and nominations by local, state, and national educational agencies.

Evaluation reports of candidate programs were reviewed, and programs that met established selection criteria were site visited. A detailed description of each successful program was then prepared. Program descriptions were designed to provide educators with enough information to enable them to decide if locally modified replications of successful programs might be desirable.

The noncognitive benefits associated with the successful programs were also reviewed to assess the state-of-the-art in the area of noncognitive benefit evaluation. Similarly, the successful programs' budgets were analyzed in an attempt to determine a simple index for cost-benefit comparison between programs.

The fourth objective of this study was to determine the current status of the 31 successful programs identified by the two earlier studies in this series. The current status of each of those programs was summarized in terms of history, methodology, and evaluation results. New evaluations and follow-up data were also analyzed in an attempt to reach a conclusion as to the continued success or eventual failure of each program.

The four sections of this report correspond to the products associated with each study objective. Section 1 describes the methodology and results of the search for new successes and Appendix A contains descriptions of the successful programs. The noncognitive benefits analysis and cost-effectiveness analysis are summarized in Sections 2 and 3, respectively. Section 4 of the report and Appendix B detail the current status of the original 31 programs determined to be successful by earlier studies.

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[1] Hawkridge, D. G., Chalupsky, A. B., & Roberts, A. O. H. A study of selected exemplary programs for the education of disadvantaged children, Parts I and II. Palo Alto, Calif.: American Institutes for Research, September 1968. (ED 023-776, 023-777)

Hawkridge, D. G., Campeau, P. L., DeWitt, K. M., & Trickett, P. K. A study of further selected exemplary programs for the education of disadvantaged children. Palo Alto, Calif.: American Institutes for Research, June 1969. (ED 036-668)

Study Limitations

The primary limitation of this study was its dependence on available evaluation information. Programs that were not evaluated or for which published evaluation information was not available were not even initially considered. The degree to which these requirements reduced the candidate population is unknown, but it is quite likely that many programs failed to be identified for these reasons. All conclusions reached in this report, then, apply only to that population of programs that did conduct evaluations and had evaluation reports available.

A second limitation relates to the noncognitive and cost-effectiveness analyses of the identified successful programs. So few programs met the criteria for success that the generality of the conclusions reached is necessarily limited. Also, since the selection of programs for those two analyses was based on demonstrated cognitive benefits, it is unknown how this selection criterion biased the sample of programs reviewed. Conclusions reached by these analyses, then, are limited in their generality to the hypothetical population of programs that could meet the cognitive benefit selection criterion.

A third limitation imposed on this study was the difficulty in obtaining new evaluation and follow-up data generated by the originally identified 31 successes. Only 14 of the 31 programs could provide us with hard evaluation data upon which their continued success could be judged. Conclusions of that analysis are therefore limited to that hypothetical population of programs that were at one time successful and continued to evaluate program effectiveness.

IDENTIFICATION OF NEW SUCCESSES

METHODOLOGY

Successful compensatory education programs for disadvantaged children were identified and described on the basis of the following steps: (1) initial search for "candidate" programs, (2) acquisition of candidate program documentation, (3) review and analysis of documentation, (4) site visitation of programs meeting selection criteria, and finally, (5) description of successful programs. Before describing the procedures and guidelines associated with each of these steps, the criteria used for program selection are discussed.

Criteria for Candidate Selection

A program was considered a "candidate" for further review and analysis when it appeared to meet a set of criteria developed by AIR in conjunction with the U. S. Office of Education (USOE). These criteria were based upon a similar set developed by AIR during two earlier studies of compensatory education programs (Hawkridge, Chalupsky, & Roberts, 1968; Hawkridge, Campeau, DeWitt, & Trickett, 1969). They were, however, slightly modified and more rigorously defined during the course of this study.

In general, any compensatory education program for disadvantaged children, serving one or more grade levels from preschool through senior high school, that demonstrated cognitive benefits exceeding some comparable reference group or norm, was considered a candidate program. More specifically, candidate programs had to meet the following screening criteria:

- Location -- operation within the United States, its possessions, or territories.
- Recency -- evaluation data published since 1 January 1968.
- Availability -- descriptive and evaluative reports on hand by 1 April 1971.
- Completeness -- sufficient information available to evaluate the program.
- Population -- disadvantaged children at any grade level from preschool through senior high school. Any reasonable definition of "disadvantaged" was accepted, e.g., economic, cultural, ethnic.
- Sample -- representative of the defined population and a minimum size of approximately thirty (30).

- Reference -- national/local norms or performance of a control group.

- Treatment -- focused on cognitive improvement; unconfounded by non-treatment components; administered for a minimum of eighty (80) hours.

- Measures -- standardized ability or achievement instruments or specially constructed measures with reported and reasonable reliabilities and validities.

- Evaluation -- completed, sound, and in terms of cognitive benefits.

- Statistics and Statistical Analysis -- properly selected, used, and interpreted.

- Reliability -- statistically significant treatment gains and/or differences in favor of the program; i.e., could have occurred by chance no more than five times in one hundred replications ($p < .05$).

- Educational Significance -- ability or achievement test gains greater than expected or observed for "average" children during a comparable period of time in a regular classroom.

The first of the above criteria, Location, was imposed to limit the population of programs searched to those conducted within the United States, its possessions, or territories. The Recency criterion minimized duplication of effort by insuring only minimum overlap with previous AIR searches which considered program evaluations with publication dates running into mid-1968. The Availability and Completeness criteria were imposed to insure that sufficient review time was provided for all candidates and that only programs with adequate documentation for review would be considered.

The remainder of the criteria specified population, sample, treatment, evaluation, and significance requirements. Only pre-college programs for disadvantaged children that demonstrated statistically and educationally significant cognitive benefits by means of sound evaluation methodology were considered. Statistical significance was required to insure that data indicating success were reliable, i.e., their probability of occurring by chance had to be less than five percent ($p < .05$). The Educational Significance requirement provided a yardstick, albeit crude, which permitted judgment as to whether the success of the program had any significance to the educational world.

The Educational Significance criterion was based upon several assumptions, namely: (1) in the regular classroom, disadvantaged children generally make achievement gains at approximately two-thirds the rate made by average children; (2) as a consequence of this slower rate of gain, disadvantaged children tend to fall farther and farther behind their advantaged peers; (3) to eventually bring disadvantaged children to the achievement level of average children, their rate of achievement gain should be greater than their more advantaged peers; and (4) this higher rate of gain should be maintained until the disadvantaged children are achieving at the level of non-disadvantaged children, at which time their rate of gain could be reduced to the average rate. These assumptions are illustrated in Figure 1.

As can be seen in Figure 1, achieved grade level is equal to actual grade level at any point on the National Norm. To perform at the National Norm level, children must make an achievement gain of one grade-equivalent unit for each year they spend in a regular school program. When testing does not encompass full-year periods, it is common to talk in terms of month-for-month gains as the National Norm expectation. (A month is considered to be equal to a tenth of a school year.)

The so-called Disadvantaged Norm is generally assumed to be two-thirds of the National Norm. In other words, disadvantaged children are expected to make a grade-equivalent gain of .67 years for each year they spend in a regular classroom environment or gain two months in achievement for every three months in school. At the end of third grade, as shown in Figure 1, disadvantaged children are expected to perform at second-grade level. By the end of the sixth grade, they are fully two years retarded with respect to the National Norm.

Special programs can help disadvantaged children by raising their rate of achievement gain above the expected two-thirds of a month per month. Unless their rate of gain is brought up to month-for-month (1:1), however, they will continue to fall farther and farther behind the National Norm (e.g., see Figure 1, increase from 2:3 to 5:6). At a month-for-month rate, they will neither catch up nor fall farther behind but, as shown in Figure 1, rate of gain must be greater than month-for-month if disadvantaged children are ever to reach the point where they can perform at grade level (e.g., see Figure 1, increase from 2:3 to 4:3). Since this is the ultimate objective of compensatory education, an achievement rate of gain greater than month-for-month was established as the criterion for educational significance.

The above discussion is based on achievement gains, but it also holds true for ability gains. If intelligence test scores are converted to ratios of mental age to chronological age, it becomes obvious that the child with an IQ of 100 has a mental growth rate of 1:1; that is, his mental growth matches his growth in age. If the abscissa in Figure 1 were changed to chronological age and the ordinate to mental age, then the National Norm in that figure would be an intelligence quotient of 100 (1:1).

Assuming that the Disadvantaged IQ Norm is something less than 100, it would fall below the Advantaged Norm. As long as that Disadvantaged Norm rate of gain was maintained, disadvantaged children would fall

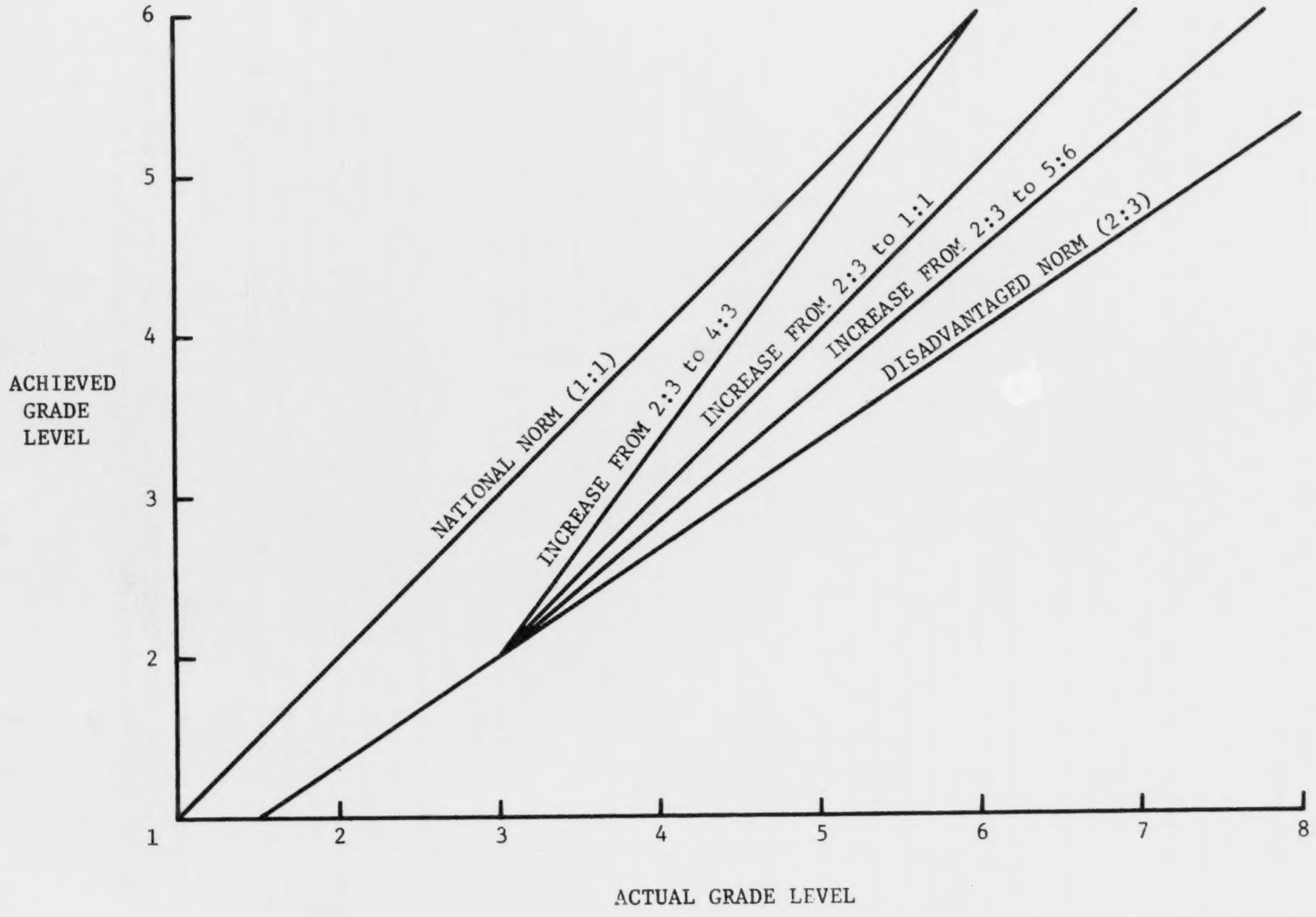

Fig. 1. National and Disadvantaged Achievement Norms

progressively farther behind their more advantaged peers in mental age. For example, if the norm for disadvantaged children were as low as .67 (an IQ of 67) then the Disadvantaged Norm in Figure 1 would illustrate the ever-increasing difference between average children and disadvantaged children in terms of mental age.

For a program to begin to overcome the disadvantaged child's general ability retardation, it would have to increase the ratio of mental age growth to chronological age growth to a figure greater than one. In other words, our criterion for educational significance of ability test score gains requires that program children make mental age gains greater than month-for-month for a reasonable period of time -- ideally, the time required to get them to the National Norm.

The criteria described above were used for program selection throughout the various phases of this study. It should be acknowledged, however, that some minor exceptions were made in the interest of not rejecting high-quality programs. In several instances where tests of statistical significance had not been made, raw data were obtained and appropriate tests computed. In other cases where treatment effects were sufficiently large so that statistical significance could be safely assumed, no tests were made. Minor deviations from the criteria were also made with respect to sample size but these and other deviations were made only when consideration of all the evidence convincingly supported program success.

Initial Search for Candidate Programs

The Education Resources Information Center, the Research and Development Centers, the Regional Education Laboratories, and the National Laboratory on Early Childhood Education were the primary sources searched for candidate programs. Additional sources tapped included State Departments of Education, the AIR library, and professional contacts in and outside USOE. Descriptions of these information sources and the methods used to search them are detailed under appropriate headings in the following sections.

ERIC Search. The Education Resources Information Center (ERIC) is a USOE-supported national network for acquiring, abstracting, indexing, storing, retrieving, and disseminating educational research reports and program descriptions. It is available, free of charge, to school administrators, teachers, researchers, information specialists, professional organizations, and students. ERIC maintains approximately 20 clearinghouses for the dissemination of education information in specific subject areas such as reading, administration, and early childhood education. In support of its dissemination function, ERIC regularly publishes four documents:

1. Research in Education (RIE), a monthly abstract journal containing recently completed research or research-related reports indexed by subject, author, and institution.

2. Current Projects Information (CPI), a collection of proposal abstracts of USOE-funded research projects operating since 1969, with the exception of Elementary-Secondary Education Act (ESEA) Title III innovative programs.

3. Pacesetters in Innovation, a cumulative collection of proposal abstracts, similar to CPI, except only ESEA Title III programs funded since February, 1968, are included. Since this document abstracts "Projects to Advance Creativity in Education," it is commonly referred to as PACE.

4. Current Index to Journals in Education (CIJE), a monthly bibliography of educational journals and periodicals.

ERIC also maintains a computer-based index, storage, and retrieval system for educational information with online retrieval terminals at its Central Office in Washington, D. C., and at its San Francisco Regional Office. The documents described in the above publications are cross-indexed and stored in that system. Also, in most cases, the data-base storage includes abstracts of the indexed documents. To assist users in retrieval of the stored information, ERIC has published a Thesaurus of ERIC Descriptors -- a compilation of education terms used to index, enter, and retrieve documents in the ERIC system.

A search of the ERIC data base was made at the USOE San Francisco Regional Office. Only the RIE, CPI, and PACE indexes were searched.[1] The CIJE index was not searched since it was assumed that any article appearing in an education journal that described a relevant program would be based upon a program already indexed in RIE, CPI, or PACE. A search of CIJE would therefore be highly redundant. This assumption was checked by a manual search of the January through July, 1970, issues of CIJE. On the basis of that search, only one program lead was identified which did not appear in the computer search of RIE, CPI, and PACE.

The ERIC/DIALOG online retrieval system at San Francisco maintains a user terminal consisting of a keyboard input and a video display output device coupled to a computer storage system housed at Lockheed Missiles and Space Company facilities in Palo Alto, California. During the computer search, an AIR project staff member was present to assist the terminal operator with the search decision process. Commands were entered in the terminal keyboard in DIALOG, the ERIC system's retrieval language. The descriptors used for the search were selected from the Thesaurus of ERIC Descriptors (2nd ed.) and are listed in Tables 1 and 2.

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[1] At the time the search was conducted, the ERIC data base covered RIE issues only through March, 1970. Therefore, a manual search was completed for issues from April through September, 1970.

Two sets of descriptors were used in the search: 40 descriptors related to disadvantaged populations, hereafter called "population descriptors" (see Table 1); and 80 descriptors related to the education of children, preschool through senior high school, hereafter called "program descriptors" (Table 2). Each descriptor was typed on the computer keyboard and entered into the system with the special command key. The computer output, that is, the number of documents indexed under the entered term, was displayed on the terminal's video display. On the basis of this search, 4,470 documents that carried at least one population descriptor and 9,543 documents that carried at least one program descriptor were identified.

To reduce the number of documents selected and to insure relevance of these documents to the objectives of this study, a "coordinated search" was carried out. The coordinated search commanded the computer to identify only those documents that carried at least one of the 40 population descriptors and at least one of the 80 program descriptors. To further reduce the retrieval set, our criterion for eliminating documents published prior to 1968 was imposed on the RIE document base. As a result of the coordinated search, 477 RIE entries, 116 PACE, and 54 CPI entries were identified, for a total of 647 documents.

TABLE 1

ERIC Search Population Descriptors

American Indians
Bilingual Education
Bilingual Students
Child Development Centers
Cultural Disadvantagement
Culturally Disadvantaged
Disadvantaged Children
Disadvantaged Environment
Disadvantaged Groups
Disadvantaged Schools
Disadvantaged Youth
Economic Disadvantagement
Economically Disadvantaged
Educational Disadvantagement
Educationally Disadvantaged
English (Second Language)
Ethnic Groups
Low Income
Low Income Groups
Lower Class Students
Mexican Americans
Migrant Child Care Centers
Migrant Child Education
Migrant Children
Migrant Education
Migrant Schools
Migrant Youth
Minority Group Children
Minority Groups
Negro Education
Negro Students
Negro Youth
Puerto Ricans
Rural Education
Rural Schools
Rural Youth
Social Disadvantagement
Socially Disadvantaged
Spanish Americans
Study Centers

TABLE 2

ERIC Search Program Descriptors

Academic Education
Achievement Gains
Achievement Tests
Arithmetic
Arithmetic Curriculum
Basic Reading
Basic Skills
Beginning Reading
Cognitive Development
Compensatory Education Programs
Core Curriculum
Corrective Reading
Curriculum Evaluation
Developmental Reading
Early Childhood Education
Early Reading
Elementary Education
Elementary School Mathematics
Elementary School Science
Elementary Science
English Curriculum
English Education
English Instruction
English Programs
Evaluation
Individualized Instruction
Individualized Programs
Language Ability
Language Arts
Language Development
Language Experience Approach
Language Instruction
Language Skills
Mathematics
Mathematics Concepts
Mathematics Curriculum
Mathematics Education
Mathematics Instruction
Phonics
Prereading Experience
Preschool Education
Preschool Evaluation
Preschool Learning
Preschool Programs
Primary Grades
Program Effectiveness
Program Evaluation
Reading
Reading Ability
Reading Achievement
Reading Development
Reading Improvement
Reading Instruction
Reading Programs
Reading Readiness
Reading Skills
Remedial Arithmetic
Remedial Instruction
Remedial Mathematics
Remedial Programs
Remedial Reading
Remedial Reading Program
Remedial Reading Programs
Science Courses
Science Curriculum
Science Education
Science Instruction
Science Programs
Secondary Education
Secondary School Mathematics
Secondary School Science
Social Sciences
Social Studies
Structural Linguistics
Ungraded Classes
Ungraded Curriculum
Ungraded Primary Programs

The three printouts associated with RIE, CPI, and PACE were available to the AIR staff three days after the search. The first step in analysis of the printouts was a scanning of each printout to identify and eliminate obvious irrelevant entries on the basis of our selection criteria. Next, arrangements were made to review microfiche copies of all relevant documents at the ERIC Clearinghouse on Educational Media and Technology at Stanford University.

Table 3 summarizes the results of the ERIC computer search and microfiche review. The number of documents identified from each ERIC source, the working total for review, and the number of documents from the working total that were determined to be relevant or irrelevant to the objectives of this study are listed in that table. Also listed are the number of documents falling into various subcategories of the relevant and irrelevant headings. The most telling figures in regard to the productiveness of the various search sources are listed across the "Specific Program Leads" subcategory and under the source column. The most productive sources for candidate leads were, in descending order, PACE, RIE, and CPI. They provided the project with 163 candidates for further review (sum of "Specific Leads" row).

Research and Development Centers, Regional Education Laboratories, and National Laboratory on Early Childhood Education Searches. The U. S. Congress, in the Cooperative Research Act of 1954, authorized USOE, through its National Center for Educational Research and Development, to create nine university-based Research and Development Centers (R&D Centers). These Centers are authorized to employ multidisciplinary techniques to (1) determine the basic information needed for educational improvement, (2) develop a rational basis for educational practices, and (3) solve pressing educational problems. Title IV of the Elementary and Secondary Education Act (ESEA) of 1965 amended the Cooperative Research Act by authorizing a network of Educational Laboratories to fill the engineering role between research findings and classroom implementation. These Regional Educational Laboratories (REL's) are authorized to develop alternatives to traditional educational practices.

Also established under Title IV of the ESEA was the National Laboratory on Early Childhood Education (NLECE) which is authorized to provide educators with information and materials relevant to the education of children from birth through age nine. NLECE, through a National Coordination Center, oversees the work of component institutions: ERIC Clearinghouses, and six university-based Research and Development Centers.

Each of the R&D Centers, REL's, and NLECE R&D Centers was sent a letter that described our study's objectives, defined our criteria for program selection, and requested them to nominate any program they were aware of that might meet our criteria. On the basis of 33 contacts and 15 replies, 16 additional candidates were identified.

TABLE 3

Summary of ERIC Search

ERIC Search	Source RIE	 CPI	 PACE
ARTICLES IDENTIFIED	477	54	116
Not available on microfiche	14	-	-
Earlier than 1 January, 1968	143	-	-
WORKING TOTAL (Relevant and Irrelevant)	320	54	116
Relevant			
1. Specific program leads (Σ = 163)	55	10	98
2. General bibliographic (searched)	70	-	-
TOTAL RELEVANT (sum of 1 and 2)	125	10	98
Irrelevant			
1. Previously identified, studied, or duplicate	67	10	11
2. Objectives outside scope (e.g., not cognitive achievement)	11	17	1
3. Limited objectives or scope (e.g., basic research)	11	2	-
4. Population not disadvantaged	2	-	5
5. Outside U. S., its possessions, or territories	8	-	-
6. Teacher or parent training	21	3	1
7. Curriculum materials, guides, handbook	50	1	-
8. Surveys, test development, correlation studies (no treatment)	25	11	0
TOTAL IRRELEVANT (sum of 1-8)	195	44	18

State Departments of Education Search. Each State Department of Education in the United States, its territories and possessions (57 in all) was sent a letter that (1) described our study's goals, (2) requested their current compilation of Title I program evaluation reports, and (3) requested evaluation reports for other programs directed at preschool through senior high school disadvantaged children. All 57 State Departments of Education were contacted, 38 reports were obtained, and on the basis of these reports, 59 additional candidates were identified.

Other Search Sources: Professional Contacts, Institutes, Laboratories, etc. The project staff attempted to contact every possible source thought to be productive in nominating candidate programs. Among these sources were professional contacts within and outside USOE, the AIR library, and various local educational institutes and laboratories. Contacts were made by telephone or by letter, whichever seemed most appropriate in the particular situation. On the basis of approximately 30 professional contacts and review of the AIR library, 61 additional candidates were found.

In addition to these formal contacts, several other sources provided candidates indirectly. For example, several large cities sent their city-wide Title I reports in response to our request for information on a specific program. Review of these reports provided us with an additional 82 candidates. Other miscellaneous sources such as Great Cities reports and Technical Assistance reports led to the identification of 41 new candidates.

Summary of candidate search. Well over 1,200 documents were screened during the identification of candidate programs search. Table 4 summarizes the results of this search in terms of the number of candidates identified from each source. Although only one quarter of the documents identified by the ERIC search were relevant to this study, Table 4 indicates that the ERIC system was still our most productive source for candidate programs. Our next most productive sources in decreasing order were city-wide Title I reports, professional contacts/AIR library, State Departments of Education, and our miscellaneous category. Unexpectedly, our least productive sources were R&D Centers, REL's, NLECE, and NLECE R&D Centers.

Document Acquisition

The document acquisition procedure was designed to obtain as much information as possible in order to further evaluate candidate programs and adequately describe those programs determined to be successes. The information gathered during candidate search was inadequate for both purposes. It consisted of documents such as evaluation report abstracts, brief journal articles, proposals, progress reports, state and local summaries of Title I programs, and the like. These documents, while adequate for initial candidate selection, were totally inadequate for in-depth program analysis. It was therefore necessary to obtain more detailed information for most programs.

TABLE 4

Candidate Programs Identified

Search Source	No. Candidates Identified	Percent of Total
ERIC (163 of 647 identified programs were relevant, i.e., 25.2 percent -- see Table 3)	163	38.6
R&D Centers, REL's, NLECE, and NLECE R&D Centers [33 contacted and 15 (45.4 percent) replied]	16	3.8
State Departments of Education [57 contacted and 38 (66.7 percent) replied]	59	14.0
Professional Contacts/AIR Library	61	14.5
Title I Reports (received from several large cities in response to an inquiry about a specific program)	82	19.4
Miscellaneous (Great Cities, Technical Assistance Reports, etc.)	41	9.7
TOTAL CANDIDATES IDENTIFIED	422	

The first step in document acquisition was to identify the individual or agency most closely associated with each candidate program. In some cases this information was readily available; in other cases it required considerable effort to obtain. The main sources used for this information were various directories of professional societies and educational organizations. When a program director could not be identified, the closest Local Education Agency (LEA) was selected as the best source for further information. The individual or agency thought to be most closely associated with each candidate was then sent a letter that (1) described this project's goals, (2) detailed the means and sources used to identify their program, and (3) requested all relevant program evaluation information.

Four hundred and sixty-nine letter requests were mailed to the 422 candidates identified during the search. Programs that failed to answer our initial request within three months were sent a follow-up letter, again requesting the desired information. One hundred and twenty-six follow-up letters were mailed. As a result of these letter requests, and some additional telephone follow-up, replies were obtained from 326 or 77.2 percent of the 422 candidates identified (see Table 4).

As program documentation was received, it was reviewed for completeness. If on the basis of this review it appeared that more information was required or available but not sent, the exact nature of that information was detailed and a letter requesting it was sent to the appropriate individual or agency. Review and analysis of each program began when all the required information was obtained.

Review and Analysis of Documentation

Document review and analysis consisted of three steps: (1) initial screening, (2) in-depth analysis, and (3) confirmation review. During each of these steps programs were evaluated in terms of the selection criteria described previously. In addition to these criteria, a set of example rejection reasons that corresponded to the selection criteria was provided to reviewers. Table 5 lists those example rejection reasons. Each category of rejection reasons was numbered, and reviewers were required to assign the most appropriate rejection category to each program rejected. They were also required to state specifically the particular reason for program rejection. Table 5 served as a guide to the selection of the most appropriate reasons for rejection and as a means to keep a tally of the reasons why programs were rejected.

Prior to in-depth analysis, the documents associated with each program were reviewed to determine (1) if they were complete enough for later analysis, and (2) if they ostensibly met our selection criteria. Again, if more information was required before a decision could be reached, it was requested from the person or agency most closely associated with the program. When documentation was found to be complete, reviewers read the evaluation information to determine if the program still appeared to meet the selection criteria.

During this screening procedure all information was taken at its face value; that is, no in-depth analysis was made of evaluation methodology, procedures, results, or conclusions. If a program appeared to meet most of the selection criteria it was assigned for later in-depth analysis. However, if on the basis of screening the program did not appear to meet criteria, a more detailed analysis was completed to determine if the program could be salvaged by more information, data analysis, reanalysis, etc. If in the opinion of the reviewer the program could not be salvaged, he was required to state specifically what criteria the program failed to meet. This was done by assignment of one or more of the rejection reasons that were associated with our criteria. The major

TABLE 5

Reasons for Program Rejection Based upon Selection Criteria

A. General Information

1. Unavailable -- no reply to initial requests and follow-ups; program not documented; refusal to release information; etc.

2. Incomplete -- documentation not complete enough for evaluation and description; information received after analysis cut-off date of 1 April 1971; etc.

3. Outside Scope -- clearly not relevant to purpose of study.

B. Methodology

1. Unclear or Incomplete -- unable to obtain clarification or more complete information on methodology.

2. Sample -- not disadvantaged; not representative of the population; biased selection; less than minimum size of 30; etc.

3. Comparison Group or Norms -- not used; not comparable; not representative or applicable; less than the minimum size of 30; etc.

4. Measures of Cognitive Benefits -- not used; inappropriate; confounded; incorrectly obtained; improperly used; not based upon standardized test(s) or specially constructed test(s) with reasonable reliability(ies) and validity(ies); etc.

5. Treatment -- confounded by nontreatment components; not consistently employed; duration less than the 80 hour minimum; etc.

C. Evaluation Results

1. Unclear or Incomplete -- unable to obtain clarification or more complete information necessary for analysis.

2. Design -- inadequate controls; not in terms of cognitive benefits; improperly selected or conducted; etc.

3. Pre-treatment Reference -- failure to provide a reference; inappropriate reference; etc.

4. Statistics -- improper selection, use, or interpretation of statistical tests.

TABLE 5, cont'd.

C. Evaluation Results, cont'd.

5. Statistical Significance -- gains and/or differences favoring the program are unreliable; i.e., they could occur by chance more than 5 times in 100 replications ($p > .05$).

6. Educational Significance -- ability or achievement test gains that are less than expected of average children during a comparable period of time or, if norms unavailable, gains not significantly greater than those of a comparable control group.

objectives of this screening process were (1) to insure that documentation was complete enough for more in-depth analysis, (2) to eliminate programs that clearly did not meet criteria, and (3) to select for in-depth analysis those programs that most closely met our criteria.

The second step in the review process, in-depth analysis, required a thorough review of the program's evaluation methodology, procedures, results, and conclusions. Unlike the screening phase, information was not taken at its face value. Rather, each step of the evaluation was questioned and analyzed to determine if the program did in fact meet our selection criteria. Evaluation data were often reanalyzed and/or subjected to different analysis models. In some cases, raw data were obtained in order to perform statistical analyses that were not completed by the original evaluators. As during the screening phase, all programs that failed to meet criteria were assigned rejection reasons which clearly defined which criteria were not met.

The confirmation review was the final phase of the analysis procedure. All programs that passed the in-depth analysis were reviewed again by one of the two senior staff members. This procedure insured that all programs finally selected were reviewed by at least two researchers. As during the in-depth analysis, the confirmation review required a complete analysis of each program's methodology, procedures, results, and conclusions.

Program Site Visits

After completion of document review and analysis, all programs that still appeared to be successful were scheduled for site visits. Program directors were contacted by telephone and a mutually agreeable time was set for the visit. They were asked to have in attendance the people that were involved in the original program evaluation and to have available any documents that might assist in the description of their program. The format for program description was discussed with them to give them some idea of the information that was needed. The primary goal of site visits was to obtain answers to final evaluation questions and to obtain the information necessary for program description.

Prior to site visit, all program documents were again reviewed to determine what information was needed to describe the program adequately. An outline for program description was also reviewed and compared to the information that was available in the documents on hand. Information that was unavailable in the documents but was required for program description was noted. These questions were the first questions asked during each site visit.

The site visitor was provided with an interview guide that was developed on the basis of some earlier and related AIR work (Hawkridge, Campeau, & Trickett, 1970). This guide suggested questions that might be asked in regard to program context, operation, and evaluation. The interview guide, reproduced in Table 6, was intended to serve only as an interviewing aid and not as a means to structure the interviews.

Site visits usually began early in the morning and were completed by mid-afternoon. In most cases the interview was tape recorded for later review. At the beginning of the visit the interviewer requested copies of all information that might be relevant to program description. This was done by reviewing with the program director the format for program description. Then the specific questions that arose during the pre-site visit document review were asked. Finally, the interviewer's guide was scanned and questions that appeared relevant were asked. In most cases, at the end of the interview, program operation was observed in the classroom or other program facilities.

Shortly after each site visit, usually the evening or morning following the visit, interview notes were reviewed, reorganized, and rewritten. The primary aid during this process was the tape recording made during the interview. This procedure was followed to insure that all information gathered during the interview was summarized while the program was fresh in the mind of the interviewer.

The site visit activity resulted in the acquisition of considerable additional information and documentation for each program. This new information was analyzed to determine if it substantiated earlier conclusions in regard to program effectiveness. In all cases, the new information did substantiate earlier conclusions.

TABLE 6

Interview Guide

CONTEXT

The Locale

Population Patterns of the Locale
- What is the density of the population?
- What are the population trends?

Economic Patterns of the Locale
- What are the major occupations of people in the locale?
- What is the unemployment rate or trend?
- What proportion of families in the locale are receiving welfare assistance?

The School System

Organization of the School System
- What grade levels do the schools serve?
- How many pupils are there in the school system?
- How many schools?
- Are there any significant trends in the school system in enrollment, withdrawal, or transfer?

Financial Status of the School System
- What is the per-pupil cost of education in the school system?
- What is the recent financial history of the school system?

Special Factors

Needs Assessment
- What was the starting point for needs assessment?
- How were the specific needs of the pupils identified?
- What were these specific needs?
- Which were selected for the program?

Historical Background
- Did the program exist prior to the time period covered in the present report?
- Is the program a modification of a previously existing program?
- How did the program originate?
- If special problems were encountered in gaining acceptance of the program by parents and the community, how were these solved so that the program could be introduced?

TABLE 6, cont'd.

PROGRAM DESCRIPTION

Scope of the Program

What numbers and kinds of participants were served by the program?

What were the specified objectives of the program?

Personnel

What kinds and numbers of personnel were involved in the program?

What were their most important duties and activities?

How much time did each type of personnel devote to these responsibilities?

What special qualifications suited personnel to the requirements of their jobs?

What special problems were dealt with in recruiting or maintaining staff?

Procedures

Activities or Services

- What were the main activities (or services) in the program?
- How were these activities (or services) related to specified program objectives?
- What methods were used in carrying out each activity (or service)?
- What was a typical day's or week's schedule of activities for the children (or others) who received the program?
- How were pupils grouped for the various program activities?
- What were teacher-pupil ratios (or aide-pupil, or adult-pupil, and so on) in each of these groupings?
- How did pupils (or others) receive feedback on their individual daily progress?
- How did parents receive feedback on their child's progress?
- What amounts and kinds of practice, review, and quiz activities were provided for pupils (or others) in the program?
- What special provisions were made for motivating pupils (or others)?
- If a comparison group was used, what were important differences in the activities and methods used in this group and the activities and methods used with the program group?

Instructional Equipment and Materials

- Were special materials developed or adapted for the program?
- What other major items of equipment and materials did the program require? In what amounts?

TABLE 6, cont'd.

How were key aids and materials used in connection with the various program activities?

If a comparison is being made between program and nonprogram persons, were there important differences between these groups in kinds and amounts of materials provided, or in methods of use?

Parent-Community Involvement

What role, if any, did parents have in the program?

Were meetings held with parents? Why? How often?

What role, if any, did various community groups have in the program?

How was the community kept informed?

If problems with parents or the community affected the program, what steps, if any, were taken to remedy the situation?

Budget

From what sources were program funds obtained?

What was the total cost of the program?

What period of time was covered by these funds?

Of the total cost of the program, what portion could be called "start-up" costs, and what portion could be called "continuation" costs? Give rough dollar estimates.

Depending upon what figures are available to you, can you break down the total cost of the program into broad categories and amounts? Define categories, if ambiguous (e.g., overhead).

What is the per-pupil cost of the program? What was the formula for computing this figure?

How does the per-pupil cost of the program compare with the normal per-pupil cost of the schools in the program?

PROGRAM EVALUATION

Objectives

What were the specific performance objectives of the program?

Which of the program objectives were included in the evaluation?

Choosing Participants

How were the children and the adults in the program chosen?

How was a comparison group (if any) chosen?

Were participants in the program involved in other programs?

TABLE 6, cont'd.

How many participants left the program?
Which participants left?
Were participants added to the program to replace dropouts?
Were there many participants who did not receive the program often because of poor attendance?
Did participants attend voluntarily?
Was the evaluation group only a portion of the program group?

Describing Participants

Which participants received the program?
How many participants received the program?
What are the ages or grade levels of pupils in the program?
Did the program serve many more boys than girls, or vice versa?
What achievement or ability scores were available before the program with which to describe the program group?
Are there other special characteristics you should mention in describing the program group?

Measuring Changes

What measures were applied to find out whether the program's aims were achieved?
How were the measures matched to the objectives?
How were the measures matched to the pupils' capabilities?
Were observers specially trained?
How much time elapsed between testings?

Presenting Data

What data were obtained from the measures applied?
What measures of central tendency were used?
What measures of dispersion were used?

Analyzing Data

What analyses were undertaken of the data?
What was the basis for judging the progress of the program group?
What comparisons were drawn for subsamples?
What evidence is there that those who attended more gained more from the program?

Program Description

A major product of this study is the set of "successful program" descriptions that appear in Appendix A. These descriptions were written in sufficient detail to permit educators to make preliminary decisions as to the desirability of attempting locally modified replications of the programs. They also detail sources for further information about each program.

Each program description was based upon the information available to the authors of this report at the time of writing. In all cases the information was less complete and more ambiguous than desired. Nevertheless, every attempt was made to describe each program accurately. To insure accuracy, a draft description of each program was sent to the program's director for review. All of the descriptions in Appendix A received approval from the appropriate program director and, in many cases, other local and concerned personnel.

USOE requested that each program description follow the format developed during the earlier AIR studies in this series. However, in the interest of improved clarity and readability, the format was slightly modified with the approval of USOE. Each program description was written in the modified format according to the following outline:

PROGRAM DESCRIPTION OUTLINE

I. Program Overview

Objectives, main components, target population
Historical development, context, needs assessment
Methodology, personnel
Evaluation results

II. Program Description

Locale and population (of service area)
- geographic, social, and economic situation
- indexes of disadvantagement

School system (in which program operates)
- geographical area served, physical size, number of schools by grade level
- size and composition of student population
- number, types, and character of programs for disadvantaged children

Relation of program to the school system
- target population
- integration of program in system and with other programs
- program administration
- source(s) of program funds
- location and character of facilities

History and needs assessment
- origins and philosophy
- assessment activity and priority selection
- plans for future

Objectives
- primary and secondary objectives

Personnel
- type, number, time devoted to program
- qualifications, experience
- activities and duties

Methodology
- primary components, activities, and services
- relation of methodology to objectives
- instructional methods, materials, and techniques
- equipment
- facilities layout
- personnel training
- service schedule (typical day/session)
- specific example of methodology

Budget
- total cost of program
- estimated cost of replication
    - initial and recurring costs
    - necessary materials and equipment costs
    - salaries
    - transportation
    - associated services
- estimated per-pupil cost for replication

III. Evaluation

Evaluation history
Summary of evaluation(s)
- selection of evaluation sample
- evaluation design
- measures used for evaluation
- cognitive achievement results
- noncognitive results
- conclusions and recommendations

IV. Modifications, Suggestions

Personnel
Methodology

Budget
Evaluation

V. Sources for Further Information

Program Director
Evaluation Director
Materials and equipment sources
References

Every attempt was made to follow the above outline when writing each program description. The differences that do occur between descriptions were due primarily to the adequacy of the information available and the unique character of each program.

RESULTS AND CONCLUSIONS

The search for successful compensatory education programs resulted in two products: (1) the identification of some reasons why programs for disadvantaged children fail to demonstrate effectiveness, and (2) the selection and description of a group of programs that most closely met our criteria for success. Each of these products is discussed below.

Search Results

On the basis of initial screening of well over 1,200 documents, 422 candidate programs were identified (Table 4). Three hundred and twenty-six, or 77.2 percent, of these programs answered our requests for more detailed evaluation information. Upon completion of in-depth analysis, 316, or 96.9 percent, of those 326 programs were rejected for failing to meet one or more of our criteria.

Rejection reasons corresponding to our selection criteria were categorized in Table 5. Table 7 indicates the number of programs rejected on the basis of each of those rejection categories. Although most programs were rejected for more than one reason, only the major rejection reason associated with each program was tallied in Table 7. As indicated in that table, approximately 21 percent of the candidate programs were rejected because they were found to be clearly outside the scope of this study or because their evaluation reports were either unavailable or incomplete. The remaining 79 percent were rejected for inadequacies of methodology (42.1 percent) or evaluation (36.8 percent).

The Measure of Cognitive Benefits subcategory within the Methodology category accounted for almost 20 percent of the programs rejected, while the subcategory entitled Sample accounted for an additional 12 percent of the programs rejected. That is, approximately 32 percent of the programs were rejected because they had an inadequate sample of disadvantaged children or because they failed to select or to correctly use

TABLE 7

Frequency of Program Rejection by Rejection Reason

Rejection Reason (Based on Table 5)	Rejection Frequency	Rejection Percent
General Information		
1. Unavailable	16	5.1
2. Incomplete	36	11.4
3. Outside Scope	15	4.8
	67	21.3
Methodology		
1. Unclear or Incomplete	15	4.8
2. Sample	38	12.0
3. Comparison or Norms	12	3.8
4. Measures of Cognitive Benefit	60	19.0
5. Treatment	8	2.5
	133	42.1
Evaluation		
1. Unclear or Incomplete	22	7.0
2. Design	20	6.3
3. Pre-Treatment Reference	3	1.0
4. Statistics	3	1.0
5. Statistical Significance	42	13.3
6. Educational Significance	26	8.2
	116	36.8
Total Rejected	316	
Total Reviewed	326	

adequate measures of cognitive benefit. The other subcategories under Methodology accounted for only 11.1 percent of the rejections.

The two most frequently assigned subcategories for rejection under Evaluation were statistical and educational significance. They accounted for approximately 21.5 percent of the rejections. In addition, approximately 13.3 percent of the programs had incomplete, totally unclear, or poorly designed evaluations. A total of approximately 36.8 percent of the programs were rejected because of evaluation inadequacies.

Considering only those programs that were adequately documented and within the scope of this study (249, or approximately 80 percent of those tallied in Table 7), approximately 66.6 percent were rejected because they failed to meet this study's primary criteria for acceptance, namely:

1. The sample of children employed must be clearly disadvantaged, properly selected, and consist of more than 30 children (15.3 percent of the 249 failed to meet this criterion).

2. Cognitive benefits must be measured with valid and reliable instruments (24.1 percent of the 249 rejected failed to meet this criterion).

3. Measured gains or differences favoring the program group must be statistically significant (16.8 percent of the 249 failed to meet this criterion).

4. Gains or differences favoring the program must be educationally significant (10.4 percent of the 249 failed to meet this criterion).

On the basis of the above discussion and the data summarized in Table 7, it would be an understatement to say that the evaluation procedures used in determining the effectiveness of most compensatory education programs are totally inadequate. Only 3.1 percent of the 326 programs that on the surface appeared to meet our criteria for success were actually found to be successful when subjected to an in-depth analysis. It is not surprising, then, that the success of compensatory education programs is often questioned. One begins to wonder whether the instructional components associated with compensatory education programs are inadequate or whether the fault lies in the evaluation procedures used to determine their effectivess. Certainly the above results place some of the onus on the people responsible for evaluating compensatory education programs.

Successful Compensatory Education Programs

Only 10 (3.1 percent) of the 326 candidate programs that provided us with enough information for in-depth review were considered successful compensatory education programs for disadvantaged children. A description of each of these programs appears in Appendix A. Table 8 summarizes the location, title, character, and grade level served for each successful program.

In terms of location, all programs found to be successful served children from urban areas. Rural programs were included in our search but none of them met our criteria for success. This fact probably has more to do with program evaluation than with actual program effectiveness. Urban school systems generally have their own program evaluation departments. It is therefore likely that an urban program will be evaluated and that the evaluation will be sound. Rural school systems generally

TABLE 8

Successful Compensatory Education Programs

Location	Title	Character	Grade
Chicago, Ill.	Project Breakthrough	Responsive Environment (Talking Typewriter)	Preschool
Chicago, Ill.	Lafayette Bilingual Center	ESL, intermediate curriculum in Spanish and English	Intermediate
Cleveland, Ohio	Diagnostic Reading Clinic	Remedial Reading	Upper Elementary
East St. Louis, Ill.	Project Conquest	Remedial Reading	Elementary
El Paso, Texas	Remedial Reading Laboratories	Remedial Reading	Upper Elementary and Secondary
Freeport, N.Y.	Mother-Child Home Program	Home enrichment via paraprofessionals and stimulation kit	Preschool
Hartford, Conn.	Higher Horizons 100	Language arts, complete freshman curriculum	Secondary
Leominster, Mass.	Project MARS	Remedial Reading	Lower Elementary
Los Angeles, Calif.	Fernald Remediation of Learning Disorders Program	Remedation of learning disorders	Elementary and Intermediate
New York, N.Y.	PS 115 Alpha One Reading Program	Beginning Reading	Elementary

lack the specialized staff necessary to design and implement sound evaluations. Consequently, it is not surprising that no rural programs were found to meet our selection criteria.

Two of the successful programs were preschool programs and can be characterized as being theoretically based and research oriented. They employed well trained personnel, used highly structured curricula and unique instructional materials, served relatively small groups of children, and were evaluated in a sophisticated manner.

Six programs were remedial reading or language arts programs that served a wider range of grade levels and considerably more children than the preschool programs. Their target groups were disadvantaged children of average mental ability, one or more years behind in reading or language achievement. They employed diagnostic techniques to develop prescriptive remediation programs, used off-the-shelf remedial instructional materials and equipment, instructed in small groups, and had low pupil-teacher ratios. Two of these remedial programs provided a complete school curriculum which focused on language arts; the other four provided approximately daily, one-hour, remedial sessions throughout the school year.

The remaining two programs were unique among the identified successes. One was a beginning reading program for first-grade children, and the other focused on the remediation of learning disorders of elementary- and intermediate-level students.

In terms of funding, four of the ten successful programs were totally supported by Title I funds and two additional programs were partially supported by Title I. Two programs were entirely supported by State funds, and one was operated on the basis of local school funds. The remaining program was supported by a federal grant from the Children's Bureau.

The only characteristic that all ten successful programs had in common was that they each met most of our selection criteria. They were found to meet more of our criteria than any of the other 326 candidates that provided us with information complete enough for in-depth analysis. The reader is referred to Appendix A for a complete description of each successful program.

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NONCOGNITIVE BENEFITS

Throughout this study our major focus has been on the identification of compensatory education programs that produced reliably measured cognitive benefits. All of the selected successful programs met our cognitive benefit criteria. These same programs, and many of the programs that did not meet our selection criteria, also had noncognitive program objectives and attempted to evaluate noncognitive program benefits. The term cognitive benefits refers to student ability or achievement gains; noncognitive benefits are defined as student school-related affective and social behavior improvements.

The noncognitive evaluations reported by successful programs are summarized in the evaluation sections of each program description (see Appendix A). In addition to these individual summaries of each program's noncognitive evaluation, an analysis of noncognitive evaluation objectives, instrumentation, methodology, and results across the 10 successful programs was conducted to estimate the state-of-the-art in the area. The following sections describe the results of that analysis.

Noncognitive Objectives

All 10 programs considered successful on the basis of demonstrated cognitive benefits stated noncognitive objectives that were directly related to improvement in student affective or social behavior. Review of those objectives and the 30 or more instruments used to measure noncognitive aspects of student behavior resulted in the identification of the affective and social aspects of student behavior that one or more programs attempted to improve.

In regard to student affective behavior, the successful programs focused on: (1) self-concept, (2) self-confidence, (3) attitudes toward school, (4) attitudes toward specific subjects, (5) level of aspiration, (6) school-related anxiety, (7) personal adaptability, (8) interest in school, (9) vocational aspirations, and (10) awareness of school and vocational opportunities. School-related social behaviors that one or more successful programs attempted to improve included: (1) social maturity, (2) social habits, (3) social adjustment, (4) relationships with peers, (5) relationships with teachers, and (6) social skills.

A similar concern with noncognitive benefits was also evident in the evaluation reports of most programs that failed to meet our selection criteria. It can therefore be concluded that most current compensatory education programs for disadvantaged children are seriously concerned with improving student noncognitive behavior in addition to producing cognitive benefits.

Instrumentation

Analysis of the noncognitive evaluations reported by the successful programs indicated that although all ten programs had noncognitive objectives only eight programs reported data relevant to their evaluation. Those eight programs used a total of approximately 30 different instruments to evaluate very similar objectives. Only four of those instruments were commercially available or common research instruments; the remainder were developed specifically for the program or the particular school system. The four commercially available or research instruments were measures of social maturity, school-related anxiety, personality, and test anxiety. They were used by four different programs. In every case, whether locally developed or commercially available instruments were used, programs either failed to report or determine the reliability and validity of their instruments.

Of the eight programs that measured noncognitive benefits, seven developed one or more of their own instruments. In most cases these instruments were student self-rating scales, student behavior inventories, questionnaires, or crude rating scales dealing with student behavior but completed by teachers and/or parents. In one case, family functioning was assessed by a locally developed instrument completed by social workers.

Student self-report instruments were used as frequently as teacher and parent questionnaires or scales dealing with student noncognitive behavior. Three of the student self-report instruments were commercially available. Only one of the instruments completed by parents and/or teachers was commercially available. In general, it appeared that more care was taken to develop adequate student self-rating instruments than was taken to construct instruments which parents or teachers completed. On the basis of the even split between student self-rating and parent/teacher completed instruments, it can be concluded that student noncognitive behavior is assessed as frequently by teacher/parent opinion as it is by students themselves.

None of the four programs that used commercial or research instruments compared student performance to available norms, or at least they did not report such comparison. This fact suggests a reference problem. The few noncognitive tests that have norms report them for some sample of average children. Should the criterion for educationally significant noncognitive gains require that disadvantaged children score on these tests at the level of their more advantaged peers, or should norms be developed for disadvantaged children? What rate of noncognitive improvement is educationally significant? What is the normal rate, if there be one, of noncognitive improvement? These questions are at present unresolved. A similar problem is discussed in the following section on methodology.

Methodology

The evaluation model most often used by the 10 successful programs was a posttest only, no-control-group design. The instruments usually associated with that model were locally developed rating scales or questionnaires dealing with student behavior but completed by parents and/or teachers. The only reference by which to judge improvement when using such a model is parent or teacher "remembered" student pre-program performance, a weak pre-treatment reference at best.

The next most frequently used model and one that is surely an improvement over the above, was a pre-posttest design using a control group. Clearly, this is one of the few models that not only provides a pretest reference for treatment group performance but also a no-treatment comparison group reference. The model provides answers to two questions, namely: Have the program children improved? and, Have they improved more than the non-treated group? Three of the four programs that used commercially available tests used this more rigorous evaluation model. The instruments most frequently associated with this model were student self-rating instruments.

The major difficulties associated with this design relate to the norm problem discussed above. Should the control group consist of disadvantaged children or average peers? To be educationally significant, should the gain made by children in the program be greater than that made in a comparable period of time in the regular classroom by disadvantaged or advantaged children? Should posttest scores be greater than those made by non-treatment disadvantaged children or equal to those made by average children? As with the norm problem, these questions remain unresolved.

The next most frequently used evaluation model was the pretest-posttest, no-control-group model. The major problem associated with this model is the general lack of norms against which to measure observed changes. If children in the program do make an improvement, is the improvement greater than would be expected of comparable or average children who did not receive the treatment? Although this model is an improvement over the posttest-only model, until more adequate test norms are available, the pretest-posttest model using a control group is the preferred design.

Results

Regardless of the evaluation model and instrumentation used, only two programs were able to report any substantial evidence that their treatment resulted in noncognitive benefits (Project Breakthrough and the Fernald School Remediation of Learning Disorders Program -- see Appendix A). Both of these programs can be characterized as being research-oriented demonstration projects. Both of them also used the most adequate evaluation model, the pretest-posttest design with a control group.

Although conclusive proof in regard to noncognitive benefits was lacking in most evaluation reports, many programs "claimed" success in this area. These claims were usually based upon data collected at the end of the program, with locally developed rating scales or questionnaires completed by teachers and/or parents. Data of this type do not normally lend themselves to any sort of statistical analysis. When they did, the benefits failed to reach acceptable levels of statistical significance.

State-of-the-Art, Noncognitive Benefits

The following state-of-the-art summary is based upon conclusions drawn from an analysis of noncognitive benefit evaluations associated with programs selected because of their clearly demonstrated cognitive benefits. Although these programs may not be considered representative of compensatory education programs for disadvantaged children in general, they can surely be considered representative of the better-evaluated and successful programs in terms of cognitive benefits. It seems reasonable to assume that these programs also represent the better-evaluated and most successful programs in the noncognitive domain. The following conclusions are based upon analysis of those programs and their generality rests upon the aforestated assumption.

It appears that compensatory education programs are becoming more concerned with noncognitive aspects of student behavior. All of the programs selected for their demonstrated cognitive benefits also stated noncognitive objectives. This trend was also apparent in the documents associated with programs that did not meet our selection criteria.

Although it is in vogue to state noncognitive objectives, many programs fail to evaluate them. In the case of our analysis, all ten programs had noncognitive objectives but only eight attempted to evaluate noncognitive benefits. Again, a similar trend was apparent in evaluation reports associated with the programs that failed to meet our selection criteria.

The state-of-the-art in regard to noncognitive measures may be responsible for the failure to evaluate stated noncognitive objectives. There are very few standardized noncognitive tests relevant to educational program evaluation that have norms and reasonable reliabilities and validities. The few that are on the market are seldom used. A compendium of some relevant instruments was published by Shaw and Wright (1967) and is recommended to interested readers.

While the paucity of useful noncognitive measures may contribute to the small number of noncognitive evaluations, it surely contributes to the negative findings of many analyses. Of the 30 or so noncognitive measures associated with the successful programs, only 4 were commercially developed instruments. Clearly, most noncognitive evaluations use locally developed instruments that are often poorly designed and not even locally standardized. The reliabilities and validities of these instruments are seldom determined. One cannot reasonably expect reliable and sensitive measurement of noncognitive behavior with such instruments; therefore, one cannot expect that noncognitive benefits will be detected even when they are present.

Finally, an even more serious problem associated with the state-of-the-art is the reference group and norm problem. This problem is directly related to the question of educational significance of noncognitive benefits. What degree of improvement in the noncognitive domain should be considered educationally significant? Should improvements be greater than that expected for non-treated average or for disadvantaged children during a comparable period of time? Should improvements be compared to norms based on average or on disadvantaged children? Although these questions are presently unresolved, they should be more actively debated.

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COST-EFFECTIVENESS ANALYSIS

Cost-effectiveness studies in education are conducted to determine the cost of benefits gained from specific instructional programs. Whether a sophisticated mathematical model or a simple formula is used to calculate the rate of return for money spent, the end result is expressed in dollars. The dollar figure represents the per-pupil cost of each unit of achievement gain or other measured benefit over a specified period of time. To the extent that cost-benefit figures for one instructional alternative can be compared with cost-benefit figures for others, people who select, plan, and administer instructional programs have guidance for making better decisions.

Although the potential value of cost-benefit analysis is widely recognized, its application in the evaluation of compensatory education programs is almost nonexistent. In fact, simple per-pupil cost -- usually derived by dividing some undefined, global cost estimate by program enrollment -- is the figure most often provided when the cost of a compensatory program is being compared to that of another school program. Local staff, however, frequently admit that their per-pupil cost estimates conceal more than they reveal about cost-effectiveness and should not be relied upon by planners when choosing among alternatives.

More rigorous approaches to cost-benefit calculation, although urgently sought after, are still very much in the drawing-board stage. Mathematical models have been derived, but exploratory attempts to implement them have not been very successful. Their failure is generally due to (1) unavailability of necessary information about costs, resources, and benefits, and (2) imprecise methods of analyzing relationships between resources and effectiveness (Carpenter & Haggart, 1970). To illustrate some of the difficulties, resources which must be provided in order for desired outcomes to occur are difficult to identify and are not reliably, accurately, or completely measured in terms of dollars. Moreover, conflicts regarding best methods for allocating their costs are largely unresolved. Assessing effectiveness is hampered by similar problems. For example, program goals are often ill-defined, or are not amenable to measurement by valid and reliable instruments. Furthermore, a single measure is often used to assess effectiveness, even though a program produces many outcomes. Finally, there is no way to guarantee future effectiveness, should the program be modified or implemented outside its original context.

These basic difficulties and the lack of practical models for sophisticated cost-effectiveness analysis led AIR to employ a less rigorous approach to cost assessment. For the purposes of the present study, it was assumed that differences in pay scales, resources, and overhead rates would operate against actual cost comparisons. On the other hand, an effort was made to find some common basis for relative between-program comparisons in terms of major cost categories and per-pupil expenditures. Assuming a common ground could be identified, the development of a simple index for cost-benefit comparisons among programs was to be investigated. For example, such an index -- in contrast to sophisticated multidimensional formulas -- might indicate the cost for each unit of reading achievement gain, mental age growth, IQ increase, and the like. The choice of a less analytical approach was made because there are not available enough examples of alternative treatments, each guaranteed to produce measured cognitive benefits, to warrant or permit rigorous cost-benefit analyses of compensatory education programs.

Problems Encountered in Obtaining Cost Information

An attempt was made to investigate the feasibility of between-program cost comparisons for the 10 identified successes described in Appendix A. AIR staff collected whatever cost information could be provided by program personnel. Existing cost categories and per-pupil cost estimates were accepted without imposing additional requirements on program staff for more detailed breakdowns and without questioning the accounting practices of the schools, districts, or agencies involved. These figures were then examined in terms of common cost categories and in terms of their estimated accuracy and usefulness for deriving a simple index of cost-effectiveness. Disappointingly, but perhaps not surprisingly, available cost data presented two insurmountable difficulties: (1) budgets did not use the same major cost categories, and (2) the accuracy of estimates within categories could not be confirmed. In the face of these obstacles, no useful cost-benefit index could be derived for comparing the 10 exemplary programs.

Following are examples of problems encountered by AIR in the course of obtaining and analyzing program cost information. These examples are presented to underline the need for standardized terminology and accounting procedures as a necessary adjunct to useful between-program cost comparisons.

Diversity of major cost categories. Accounting for program costs appeared to involve a wide variety of practices and certainly exhibited diversity in terms of categories used to sort and report major program expenditures. For example, salaries were reported differently by each of the 10 programs described in Appendix A. Some budgets did not distinguish between instructional and administrative staff in reporting salaries. Six programs did identify types of paid staff, but whether their salaries were paid in full or in part by the program was not entirely clear. Administrative and supervisory services were sometimes charged to the program and sometimes not; frequently, the basis for prorating such expenditures was not given. Fringe benefits were sometimes included in total salary figures and sometimes not, and the cost of such benefits was seldom specified.

Materials, supplies, and equipment costs were all reported differently by each of the 10 exemplary programs. In one budget, expenditures for instructional supplies were not differentiated from costs of plant maintenance. Only three programs reported expenditures under a special "equipment" heading, even though in most cases various devices were used in the course of providing the instructional program.

Other costs which evidently were not always assigned to program accounts were those for facilities, plant maintenance, utilities, office equipment, office supplies, food services, travel expenses, transportation costs, and rentals. It is assumed that some of these expenses were included under headings such as "operation of plant" or "other operating expenses," although further clarification was not provided.

Due to the wide variety of provisions made for program planning, personnel training, implementation, and research and evaluation, these program-related costs were very often omitted from budgets. For example, the budgets for eight programs which involved research and demonstration activities did not show costs associated with testing, data analysis, and report writing. In another budget, costs of evaluation were not reported separately from other "contracted services." It is known that evaluation costs were about one-third of the amount reported under this broad heading, but it is not known what the additional types of contracted services were.

Likewise, none of the budgets specifically identified planning and implementation costs. In some cases, such costs were probably covered as salaries. Nine of the 10 budgets did not indicate costs for inservice training; one reported a small amount under "consultants for inservice." Because most programs devoted substantial amounts of time to training staff in the application of program methods, it is assumed that costs of inservice training were not differentiated from salaries.

Accuracy of estimates provided for major cost categories. Examination of project documents occasionally revealed discrepancies in estimates provided by project staff. One director found it difficult to provide accurate estimates because the instructional program was only one component of a complex arrangement of research, demonstration, and training activities. Another program director provided seven different estimates of cost requirements for replicating the instructional portion of her program. A third program, which was terminated in 1969, had difficulty locating copies of the program budget and therefore provided us with crude "estimates" in various budget categories.

In most cases, program staff were quite willing to provide cost estimates in broad categories. However, the bases for most estimates were seldom explained. Sometimes it appeared that salary expenses were assigned to the program in proportion to the amounts of time personnel devoted to performing their program duties. In other instances, salaries for part-time personnel were evidently assigned to nonprogram accounts. For administrative and supervisory staff who served both regular and compensatory school programs, it is possible that average daily membership might have been a more appropriate method for prorating salary expenditures, but alternative accounting strategies were not considered.

In no case were procedures for amortizing costs of capital equipment or facilities detailed, nor was the method of prorating capital expenditures between program and nonprogram users specified. Neither were the bases for prorating other resource costs described, and therefore the accuracy of these estimates could not be confirmed. The variations across programs were inevitably tied to local conditions and to established accounting practices within school districts. Because the accuracy of estimates could not be verified, and because major cost categories and their definitions varied considerably across programs, per-pupil costs based on these estimates were virtually useless. In fact, school officials interested in replicating one or more of the 10 exemplary programs would get at least as much budgeting guidance from studying personnel and methodology sections of the descriptions in Appendix A as could be gleaned from the very limited and ambiguous cost data supplied.

Summary and Recommendations

To summarize, an attempt was made to compare 10 exemplary compensatory education programs (Appendix A) on the basis of benefits gained for money spent. It was found that the effectiveness of all 10 programs could be expressed satisfactorily, for our purposes, either in units of IQ gain, mental age growth, or grade-equivalent gain. On the other hand, available cost information was idiosyncratic. It showed a lack of correspondence among principal budget headings and in the sorts of expenditures assigned to each broad heading. Moreover, the accuracy of figures provided could not be estimated because it was impossible, within the scope of this study, to make detailed inquiries into the specific accounting procedures involved in assigning, classifying, and computing program expenditures.

As a step toward facilitating future cost-effectiveness studies, the following recommendations are made:

- First, the use of certain basic cost categories and of standard accounting procedures should be encouraged wherever feasible. The most essential recurring costs should at least be calculated, classified, and reported in standardized ways.

- Second, expenditures should be reported in sufficient detail to permit the isolation of specific costs attributable to each major program component. The exact nature of such details and the format in which they should be reported should be specified and required as part of program evaluation.

- Third, standardized procedures for computing simple per-pupil cost should be enforced so that one program can reasonably be compared with other programs.

- Fourth, technical assistance should be provided to districts to help upgrade program cost-accounting procedures. Such assistance might take the form of visiting teams of cost-accounting experts, or of making available high-speed electronic data processing equipment at minimum cost to the districts.

Fifth, adequate cost data should be readily accessible to users outside the district without unduly disrupting the local accounting staff. A workable information retrieval system should supply cost data needed for local educational planning as readily as for state and national cost surveys.

For guidance in implementing the above suggestions, two USOE-published manuals, Principles of Public School Accounting (Adams, Hill, Perkins, & Shaw, 1967) and Financial Accounting for Local and State School Systems: Standard Receipt and Expenditure Accounts (Reason & White, 1966), are recommended. Both manuals define various accounting terms and procedures. They also provide guidance in analyzing, classifying, and recording receipts and expenditures.

In conclusion, our analysis indicated that most of the several hundred program documents studied describe to some extent resource requirements, costs, and program effectiveness. However, resource requirements are rarely detailed comprehensively or clearly, costs are reported as global estimates for ill-defined major categories, and effectiveness is all but impossible to prove in terms of reliably measured cognitive benefits. It is possible that the complexity of the educational system operates against improvements in these areas. It seems as likely, however, that lack of competency, inaccessibility of technical assistance and computerized aids, and absence of enforceable standardized procedures stand in the way of adequate program cost accounting, evaluation, and reporting by local staff.

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REVIEW AND ANALYSIS OF 31 SUCCESSFUL PROGRAMS

The present study is the third in a series of studies aimed at identification and description of successful compensatory education programs for disadvantaged children. The first two studies in the series identified 31 successful compensatory education programs on the basis of methodology and selection criteria similar to those described in earlier sections of this report (Hawkridge, Chalupsky, & Roberts, 1968; Hawkridge, Campeau, DeWitt, & Trickett, 1969). Programs that met selection criteria were described by AIR for USOE's It Works series, which summarizes successful education programs for disadvantaged children.

As part of this study AIR, at the request of USOE, attempted to determine the current status of each of the original 31 successes in terms of their continued operation, modifications, evaluation history, and stimulation of replication interest. Additionally, new evaluation and follow-up data were analyzed to determine which programs continued to be successful. This section of the report details the results of that effort.

Methodology

Each of the 31 program directors was initially sent a letter asking him (1) if his program was still in operation, (2) if so, what changes or modifications had been made since the It Works description, (3) what, if any, new evaluation or follow-up data were available, and (4) if he was aware of any replications of his program. The letter also described the purpose of our inquiry and requested copies of documents relevant to our questions. On the basis of this inquiry and several letter and phone follow-ups, available information was obtained for each of the 31 programs. The quality and completeness of the obtained information, however, varied considerably from program to program.

When the requested information on each program was obtained, summary and in-depth analysis was begun. The three desired products of this effort were (1) individual program status summaries, (2) a summary of program status across, between, and within gross grade-level categories, and (3) an analysis of the characteristics associated with continued success as compared to those characteristics associated with eventual discontinuation or failure. The data obtained from program directors made the first two tasks possible; however, the third task could not be carried out because data were incomplete and of poor quality. The main problem was the inconclusiveness of the new evaluation and follow-up information. The number of programs that could clearly be identified as continued successes or eventual failures was so small that meaningful comparisons and reliable conclusions could not be made.

The first product of the program status review was the set of "program profiles" that appears in Appendix B. Those program profiles describe each program's history and methodology, summarize each program's evaluation and follow-up results to date, list the locations of program replications, and reach some conclusion in regard to accumulated evaluation results. The quality of the information obtained from each program director is reflected in these program profiles.

The second product of this effort, a summary of program status across, between, and within gross grade-level categories, is described below. The results summarized in following sections should be interpreted with caution since the data provided by program directors was in many cases quite inadequate for our purposes, and the number of programs associated with each result is usually quite small.

Status of the Original 31 Programs

The current status of the original 31 programs that were selected for inclusion in the It Works series is summarized in Table 9. The information in that table is presented within and across gross grade-level categories. The following discussion focuses on results across and between grade levels, and later sections deal with the conclusions for programs within each grade level.

Twenty-five (80.6 percent) of the original 31 programs are still in operation. Of these 25 continuing programs, 17 (68.0 percent) have reported changes or modifications. Twenty-two (80.0 percent) of the continuing programs and four of the discontinued programs have completed evaluations or follow-ups since their It Works write-up. Replications were reported by 14 (45.2 percent) of the original 31 program directors (see Table 9).

On the basis of the new evaluation and follow-up data available, conclusions could be drawn in regard to only 14 of the original 31 programs. Five of the 17 programs on which conclusions could not be drawn did not collect new data; five that did collect new data could not provide us with their data in time for this summary. Two of the remaining programs provided us with uninterpretable data, three failed to use standardized tests, and two assessed only noncognitive benefits. On the basis of the hard data available on 14 programs, 9 demonstrated some degree of continued success and 5 were determined to be no longer successful. Table 10 identifies programs that continue to be successful, those that are no longer successful, and those 17 on which definite conclusions could not be drawn. The specific reasons for placement in each category are detailed in each program's profile appearing in Appendix B.

Fourteen program directors (45.2 percent) reported that their program was used as a model for replication at other sites. Ten of those 14 programs were still in operation, 3 were determined to be continued successes, and no conclusions in regard to continued success could be drawn for the other 7. All replication leads were followed up to obtain information in regard to replication success. As indicated in each program profile, adequate evaluation information upon which to draw conclusions could not be obtained for most replications.

TABLE 9

Current Status of Original 31 Successes

Grade Level	Original Number	Continuing	Changes	New Evaluations	Continued Success	Replications
Preschool	10	7 (70.0%)	4 (40.0%)	9 (90.0%)	3 (30.0%)	5 (50.0%)
Elementary	14	11 (78.6%)	10 (71.4%)	11 (78.6%)	3 (21.4%)	7 (50.0%)
Elementary-Secondary	2	2 (100.0%)	2 (100.0%)	2 (100.0%)	0	1 (50.0%)
Secondary	5	5 (100.0%)	1 (20.0%)	4 (80.0%)	3 (60.0%)	1 (20.0%)
All Programs	31	25 (80.6%)	17 (54.8%)	26 (83.9%)	9 (29.0%)	14 (45.2%)

TABLE 10

Results of New Evaluation Data Analysis for the Original 31 Successes

Grade Level	Continued Success	No Longer Successful	Data Inadequate for Conclusions
Preschool	Learning to Learn Preschool Program (Fresno) Project Early Push	None	Infant Education Research Project* Early Childhood Project Perry Preschool Project Diagnostically Based Curriculum* Academic Preschool Preschool Program (Oakland) Ameliorative Preschool*
Elementary	Language Stimulation* Programed Tutorial Reading More Effective Schools**	Elementary Reading Centers Speech & Language Development Augmented Reading Project	Malabar Reading Program* Self-Directive Dramatization* Project Concern School & Home Program After School Study Centers Plus Program Afternoon Remedial Enrichment Intensive Reading Instructional Teams
Elementary-Secondary	None	Communication Skills Center	Homework Helper Program
Secondary	Jr. High Summer Institutes Project R-3 College Bound Program	Expanded Language Arts	Summer Upward Bound

* indicates programs that have been discontinued
** successful with respect to a matched control group; gains generally less than month-for-month

All secondary and elementary-secondary programs have continued to operate, while only 70 percent of the preschool programs, and 78.6 percent of the elementary programs are still in operation. The highest percentage of modifications reported was 100 percent at the elementary-secondary level; both programs at that level reported changes. The second highest percentage of changes reported (71.4 percent) and the greatest absolute number of programs that reported change were at the elementary level. Forty percent of the programs at the preschool level reported changes, while only 20 percent of the secondary programs were modified. About 50 percent of the program directors at each grade level except secondary (20.0 percent) reported that their programs were being replicated at other sites. On the basis of the hard evaluation data made available by program directors, only three programs at the preschool level (30.0 percent), three at the elementary level (21.0 percent), and three programs at the secondary level (60.0 percent) were determined to be continued successes. None of the programs at the elementary-secondary grade level met our criteria for continued success (see Table 9).

Summary of Status by Grade Level

The above section summarized the new information obtained on the original 31 programs across and between grade-level categories. The following summarizes the same data in somewhat more detail within each grade-level category (see Table 9).

Preschool programs. Three of the original ten preschool programs are no longer in operation at their original site; however, one is a Head Start model in several cities (Ameliorative Preschool Program) and the other is a model used in the national Follow Through program (Diagnostically Based Curriculum). Actually then, 9 of the 10 original preschool programs are still in operation, 7 at their original site, and 2 at other sites.

Four of the original preschool programs still in operation at their original sites reported some modifications. Two modified their selection criteria, one increased its staff and service group, and one made curriculum modifications. None of these programs decreased in size.

The program directors of the seven continuing programs all reported that new evaluation and/or follow-up data had been collected; however, only four of them provided us with their results. Similarly, although follow-up data had been collected for two of the three discontinued programs, the results were not released in time for consideration here.

Of the four continuing programs that provided us with additional data, conclusions could be reached on three (one program's evaluation used an unstandardized test). All three of these programs continued to be successful in producing short-term benefits (see Table 10); however, follow-up data on two of the three programs indicated that their benefits were not maintained two years after treatment (Fresno's Preschool Program and Learning to Learn Program). The three programs that continue to demonstrate at least short-term success reported few significant modifications other than an increase in the size of the treatment group for two programs.

Half of the ten original preschool program directors reported replications at other sites. Two of the programs that reported replications are no longer in operation at their original site. Four of the original 10 preschool programs are currently being replicated in connection with the national Head Start and Follow Through programs (Ameliorative Preschool, Diagnostically Based Curriculum, Perry Preschool, and Academic Preschool).

Elementary programs. Eleven of the original 14 elementary programs have continued, and 10 of them reported modifications. Most of these changes amounted to increases or decreases in staff size, service group size, or slight change in the scope of instruction. Increases in size were reported more often than decreases.

Nine of the 11 continuing elementary programs reported that they had conducted new evaluations, and two of the discontinued programs reported new data since their It Works description. Useful cognitive achievement data were available for only 6 of the 11 programs that conducted new evaluations or follow-up. On the basis of these data three programs were judged to be continued successes (although one did not consistently produce greater than month-for-month gains) and three were considered no longer successful (see Table 10).

Half of the programs reported replications away from the original site. In two cases, the original programs on which replications were based were no longer in operation.

Elementary-secondary programs. The two programs serving children at elementary and secondary levels are still in operation. The evaluation information provided by one program indicated that it was no longer successful; the information provided by the other was noncognitive in nature (see Table 10). The program that was determined to be unsuccessful was reduced in size and reported no replications. The other program was expanded and was being "replicated" throughout the city.

Secondary programs. All five secondary programs are still in operation and only one reported any major modifications. The modifications reported by that program, Project R-3, included a target-population switch from underachieving eighth- and ninth-grade children to the entire seventh-grade population at the school.

Four of the five programs reported new evaluations. On the basis of obtained data it was concluded that one program was clearly a continued success, two others were moderately successful, and the remaining program demonstrated that it was no longer successful (see Table 10). Only one of the five programs reported a replication outside the original school district.

Conclusions

Most (27) of the original 31 successful programs are still in operation at either their original site (25) or a new site (2). Two programs were terminated, as planned, upon completion of research grants, one was terminated because of program director retirement, and a fourth was terminated due to lack of continued funding. It can be concluded that successful compensatory education programs tend to remain viable for considerable periods of time.

Nineteen of the original 31 programs reported some modification, two of those programs were in operation at other than their original site. Most modifications consisted of an expansion or reduction of services with more expansions than reductions reported. These modifications were usually associated with changes in the level of program funding.

Almost half of the program directors reported that their programs were being replicated at some other sites. On the basis of incomplete follow-up data, it can be concluded that most of these replications were small-scale and partial replications. None of the replications provided us with data upon which program success could be evaluated.

Although 26 programs reported new evaluation or follow-up data, 5 programs did not release their data, and 7 programs provided us with data upon which conclusions could not be drawn. On the basis of the hard data provided by 14 programs, 9 of those programs were determined to be continued successes (3 at each of the preschool, elementary, and secondary levels), and 5 were classified as no longer successful (3 at the elementary; 1 at both the elementary-secondary and secondary grade levels). Approximately 64 percent of the original 31 programs that provided us with hard evaluation data continue to be successful.

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APPENDIX A

NEWLY IDENTIFIED SUCCESSES

Note to Readers

Prior to reading the following program descriptions, it is suggested that the "criteria for program selection" discussed on pages 3 through 7 be reviewed. In particular, the reader should take note of the time between testing when evaluating the educational significance of grade-equivalent gain scores. In all cases, when grade-equivalent gains were greater than that expected for average children during the period between testings, the gains were considered educationally significant.

DIAGNOSTIC READING CLINIC

CLEVELAND, OHIO

PROGRAM OVERVIEW

The Diagnostic Reading Clinic's interdisciplinary staff provided diagnostic and remediation services to children in grades four through seven from 90 of Cleveland's Title I schools. Designed to treat reading problems which were beyond the scope of regular classroom reading instruction, the Clinic program provided for short-, moderate-, and long-term remediation.

In-depth diagnosis of pupils referred by the schools was conducted by a team consisting of a reading clinician, psychologist, nurse, and speech-and-hearing specialist. Based on results of the diagnostic screening, a highly organized instructional plan, consisting of carefully selected techniques, procedures, and materials, was written for each child by the remediation team. The child received his individually prescribed remediation from a certified reading clinician for one hour a day, five days a week, for his assigned term.

The ultimate objective of the Diagnostic Reading Clinic was to enable each child to benefit from regular classroom reading instruction upon completion of his remediation term. To this end, children who tested within a year of their reading expectancy level (as determined by the Bond-Tinker formula) were released from the Clinic and provided with follow-up service by special consultants who used various incentives to encourage maintenance and improvement of reading skills.

Inservice training, provision and interpretation of diagnostic and remedial information, and consultative assistance on a request basis were additional services the Clinic provided for the feeder schools. Parent involvement was also an important component of the Clinic program.

The Clinic diagnosed about 730 pupils during the 1969-70 school year and remediated 532 of these children. Evaluation of the 1969-70 program was based mainly on reading achievement gains of a random sample of 62 students with a grade-level distribution corresponding to that of the entire Clinic population. Reading grade-equivalent gains were measured by pre- and post-service administrations of the Gates-MacGinitie Reading Test. Regardless of length of treatment, all gains were found to be statistically significant. Moreover, educational significance of these gains was confirmed by the fact that each of the three service groups (short-, moderate-, or long-term remediation) made greater than the expected gain for "average" readers (test norms). Comparison of gains across service groups indicated that the moderate-term group had the greatest rate of gain in both comprehension and vocabulary. Teacher perceptions of the participants' classroom behavior, and parents' reports of their children's home behavior were quite positive.

PROGRAM DESCRIPTION

Context and Objectives

Located in the heart of Cleveland, the Diagnostic Reading Clinic served 90 Title I schools. Based on AFDC figures, about 17 percent of the children in these schools received puplic welfare, approaching the city-wide welfare rate of 23 percent for the school-age population. Clinic enrollees came from neighborhoods characterized by severe economic disadvantagement and high mobility. The city-wide pupil mobility rate was greater than 50 percent, with the number of children emigrating from Cleveland schools far exceeding entries.

The Diagnostic Reading Clinic began as an Office of Economic Opportunity project in 1966, but was transferred to Title I in 1967. The Clinic was one of several projects which comprised Cleveland's Title I program. Other Title I components in which some children at the Clinic participated included the nutrition program (free lunch and breakfast) and special remedial math instruction. The only special reading program these children received, however, was provided at the Clinic. The Clinic provided in-depth diagnosis of reading disability and an inter-disciplinary approach to remedial reading instruction for pupils with reading problems beyond the scope of the schools' instructional services. Limited facilities and lack of specialized help in the schools thus contributed to the need for reading clinic services.

Pupils in grades four through seven in Title I schools were recommended to the Diagnostic Reading Clinic by teachers and principals on the basis of serious reading retardation. Children with severe behavioral problems or low test IQ's were assumed to be unable to benefit from the Clinic program. The decision to focus on children in grades four through seven, rather than the lower elementary grades, was based on the assumption that younger children who read below grade level may simply need more maturation time to catch up with their peers. On the other hand, the developmental level of upper-elementary age children is presumed to be such that, by grade four, children reading one or two years below their grade level are likely to require special remediation.

The Clinic's diagnostic screening process identified youngsters with the most severe reading disabilities of those nominated by the schools. On the basis of the prognosis obtained from these tests, the specialized Clinic staff provided individually prescribed techniques, procedures, and materials to children who had been scheduled for short-, moderate-, or long-term remediation periods. The Clinic's objective was to bring these children within one year of their reading expectancy level[1] before returning them to their regular classrooms. During the 1969-70 school

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1. Reading expectancy level was computed according to the Bond-Tinker formula: Reading Grade = IQ x number of years in school + 1.0 year, in which IQ is an index of rate of learning something new and 1.0 year is

year described below, 730 pupils were nominated for diagnosis and 532 of those were selected for remediation at the Clinic.

Personnel

Educational Program Manager (three-fourths time). The program manager was responsible for the operation of the Clinic, recruitment and inservice training of staff, coordination of the Clinic's program with other compensatory projects, provision for parent participation, and involvement of the school staff in the Clinic's efforts to improve the reading achievement of their students. Her previous qualifications included certification as a Reading Specialist and classroom teaching and administration experience.

Staff Assistant. The staff assistant directed and supervised the Clinic staff, established and administered referral procedures, and provided consultation services for pupils, parents, and other school personnel. Her background, experience, and credentials were similar to those of the program manager, above.

Reading Clinicians (16). The reading clinicians had completed a training sequence which equipped them to diagnose and remediate. They met the State of Ohio certification requirements for a Reading Specialist.

Social Workers (2). The social workers were responsible for collecting and interpreting family history through home visits and parent interviews. In addition, they provided consultative and supportive services to Clinic staff and school staff to develop strategies for more effective solutions to children's problems. The social workers held a Master's and a Bachelor's degree, respectively, and both had social-work experience in disadvantaged communities.

Speech Therapist. The State-certified speech therapist interpreted and reported findings of evaluations of speech, voice, hearing, and auditory discrimination as they related to progress in reading. On the basis of her recommendations, children received additional in-depth evaluation at the Clinic.

Psychologists (2). Psychologists administered and interpreted appropriate individual psychological tests, using and interpreting projective techniques when necessary. Psychologists also provided consultative services to school and Clinic staff, parents, and teachers. Both were certified school psychologists.

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1. (cont'd.) added because the child starts school at grade 1.0. For further detail, see Bond, G. L., & Tinker, M. A. Reading difficulties: Their diagnosis and correction. (2d ed.) New York: Appleton-Century Crofts, 1957.

Nurse. The nurse compiled and interpreted records of each child's health status in addition to administering the Keystone, Snellen, and (if necessary) the Reading Eye Camera tests. She consulted with parents and provided referrals as needed for medical services. The nurse held a Master's degree.

Teacher Assistants (3). The teacher assistants were members of the community who volunteered to assist in tutorial and small-group work in addition to supervising the arrival, departure, lunch, and movement of pupils.

Drivers (5). The drivers, knowledgeable in basic Clinic philosophy, transported pupils to and from the Clinic each hour. They were responsible for as many as 70 Clinic pupils per day.

Clerks (3). Clerks' Clinic duties included typing, duplicating, filing, and other clerical tasks. The clerks were responsible for the maintenance of files and records, and received inservice training in connection with their Clinic employment.

Methodology

The specific aims of the Diagnostic Reading Clinic were as follows:

- To improve the reading skills of children with serious reading disabilities in an effort to bring them up to an appropriate level for their reading expectancy.
- To provide follow-up services for Clinic pupils at their home schools in an effort to continue reading progress.
- To coordinate services of related disciplines in the diagnosis and correction of reading difficulties.
- To facilitate parental involvement and support in the remediation of pupils' reading disabilities.
- To provide consultation services to classroom teachers of referred pupils.

When the scope and nature of a reading disability required specialized help, the Reading Clinic offered precise diagnosis by a specialized team which included a reading clinician, psychologist, speech and hearing specialist, and nurse. A variety of evaluative devices were used in order to achieve an objective analysis of each pupil's disability. Tested skills included word recognition, vocabulary, comprehension, and oral reading. In addition, reading interests and attitudes were assessed. Other areas which were evaluated included auditory discrimination, visual-motor status, listening skills, scholastic aptitude, and personal adjustment. Case-study procedures were used to collect data about the child's home, school, and developmental and medical history. Medical and psychiatric specialists were often consulted for diagnosis.

Once the handicapping factors causing the child's reading disability were identified, instructional methods and materials were carefully selected by the remediating clinician and the Clinic's staff assistant. In planning for each child's instruction, the characteristics of his growth and development were also considered. The prescribed instructional materials and methods reflected the following characteristics: (1) highly individualized remedial treatment, dictated by the child's instructional needs, (2) highly organized instructional plan which was meaningful and appropriate for the child, (3) concern for the child's need to feel successful, and (4) provision for articulation and follow-up with the child's regular classroom so that reading progress initiated by the Clinic could be maintained and strengthened.

Schedule and facilities. During the 1969-70 school year, pupils were scheduled for either short-term (6 to 12 weeks), moderate-term (13 to 20 weeks), or long-term (up to one full school year) remediation at the Diagnostic Reading Clinic. Pupils were not told what group they were in, and were returned to their regular classroom ahead of schedule if they reached within one year of their expectancy level when measured by standardized reading tests and if they could perform independently in the use of regular classroom materials at least half of the time.

Pupils were transported to the Clinic daily for one hour of remedial instruction, tailored to each child's specifically identified needs. During the hour, the reading clinicians employed a variety of techniques, procedures, and materials to stimulate, motivate, and provide direct instruction and practice of skills. Materials played a critical role in methodology and were selected to support the prescribed techniques. In addition, however, materials were required to be suitable in type, format, and difficulty level and to be abundant enough to allow for variety. Emphasis was on "off-the-shelf" items rather than Clinic-developed materials.

The typical instructional hour was divided into four time segments:

Phase-in: Brief review of prior learnings, or use of a special game or other activity to "get set" for the hour's work.

Group instruction: Basic teaching of specific skills, as determined by individually prescribed remediation procedures.

Independent activity: Games, devices, and guided workbook or work-text activities designed to either test or further develop independence.

Phase-out: Quick good-bye game or other pleasant activity designed to show, rather than to tell, how successful the student had been. This activity might include Consonant Lotto, End-In-E Game, First

Phonic Slide Rule, Group Sounding Game, Phonetic Word Wheel, Syllable Game, Vowel Lotto, or Spin-A-Test. In addition, some work to take home might be assigned.

Remediation sessions were held in about ten classrooms at the Clinic. In each class there were two clinicians and about ten children. Although clinicians viewed children as individuals, they recognized the need of a disabled reader to share reading experiences with other children who were having similar difficulties and overcoming them. Thus, during the hour, the child might be grouped with a small number of children whose needs, strengths, and disabilities were similar to his own. The clinician-pupil ratio during group instruction ranged from 1:8 to 1:4, with the latter occurring more often.

Due to the highly specific nature of each child's instructional treatment, it is extremely difficult to associate a routine set of remediation activities and teaching procedures with the Clinic program. A hypothetical case study prepared by a member of the Clinic staff is presented under Specific Example of Methodology to illustrate the Clinic's diagnostic and remediation procedures.

Materials and equipment. The following list represents a small fraction of the more than one hundred different items of audiovisual equipment, reading series, book collections, workbooks, dictionaries and reading labs, games and devices, supportive materials, and general equipment used at the Clinic. For further detail, the Clinic staff should be contacted (see Sources for Further Information).

Examples of Reading Series:	Publisher:
Cracking the Code	Science Research Assoc.
Deep-Sea Adventure Series	Field Educational Pub. Co.
Jim Forest Series	Field Educational Pub. Co.
Morgan Bay Mysteries	Field Educational Pub. Co.
Pacemaker Classics	Fearon
Sounds of Books	Holt, Rinehart and Winston

Examples of Workbooks:	
Building Reading Skills	McCormic-Mathers
Eye and Ear Fun Workbooks	McGraw-Hill
Ginn Enrichment Workbook	Ginn
Language Experience in Reading	Encyclopedia Britannica
Merrill Linguistic Series	Charles E. Merrill
Phonics is Fun Books	Modern Curriculum Press
Phonics We Use	Lyons & Carnahan
Reading for Concepts	McGraw-Hill
Structural Reading Series	Singer

Examples of Audiovisual Equipment:	Manufacturer:
Audiovisual Cards	various
Carousel Slide Projector	various
Controlled Reader	Educational Dev. Lab.
Instamatic Projector	various
Language Masters	Bell & Howell
Opaque Projector	various
Overhead Projector	various
Record Players	various
Tape Recorder	various

Inservice training and feedback to classroom teachers. Monthly inservice opportunities were provided for the classroom teacher to help her understand the clinical procedure and to view the child's disability in a new light. Frequently, the classroom teacher was guided in adapting classroom procedures to reinforce the remediation services of the Clinic. In addition, new instructional techniques for enhancing specific reading skills were demonstrated by speakers who included university educators and reading experts. Teachers were also brought to the Clinic for inservice visits. Other sessions focused on gaining parent and community involvement. Specific techniques were discussed for assisting parents in dealing with the reading problems of their children.

Monthly conferences between Clinic staff and classroom teachers were held to advise teachers on remedial procedures and to correct specific classroom reading problems. Teachers also received a diagnostic summary, periodic progress reports, and a final report on each of their pupils at the Clinic.

Parent participation. Prior to a child's screening by Clinic staff, his parents were asked to send their child in for diagnosis. If evaluative tests indicated the child's reading achievement could be enhanced by special remediation, the parents were asked for permission to enroll the child in the Clinic program. Parents were invited to visit the Clinic and to attend monthly meetings. Their opinion of the Clinic program was frequently solicited in the course of these meetings and during home visits by the social workers. Parents were encouraged to be supportive in dealing with their child's reading problems. They were informed of their child's progress every four weeks and, when the child had completed his prescribed treatment, the parents received the Clinic's final report and recommendations.

Follow-up service for pupils returned to classes. An important facet in the continued improvement of children returned from the Clinic to the regular classroom was reinforcement of the reading skills acquired during remediation. Incentives included personal encouragement and individualized attention in reviewing and reinforcing necessary reading skills. These follow-up services were provided by Upper Elementary Consultants after studying the pupil's case records and consulting the classroom teacher, principal, and the parents.

Specific Example of Methodology

The following hypothetical case study illustrates the Clinic's diagnostic and prescriptive remediation procedures. The case study was prepared by a member of the Clinic staff.

Consider Gilbert X. He is 12 years, 3 months old. He entered the school district in the first semester of first grade from a suburban kindergarten. Gilbert's school experience included attendance in two inner-city schools. His rate of progress in first grade began to deviate from the norm and by the time he had reached fifth grade, his school records clearly established him as a youngster who probably would acquire reading skills more slowly than his peers.

Before in-depth diagnosis was initiated, the social worker learned that Gilbert's mother was deceased and that he lived with his grandmother. During the diagnostic intake procedures, his medical history, vision, and hearing appeared satisfactory. The diagnostician determined from observation that he was a cooperative, persistent child, despite the physical discomfort of a cold. Specific tests indicated an oral reading grade of 2.7 on the Gates-McKillop and, on the Gates-MacGinitie, a reading vocabulary grade of 1.9 and a reading comprehension grade of 2.2.

Additional information from the WISC, administered by the staff psychologist, indicated a verbal IQ score of 87, a performance IQ score of 67, and a full scale IQ of 75. The psychologist's notes described him as a well-developed adolescent whose test behavior was cooperative; however, he evidenced generally poor work habits, short attention span, distractability, and limited ability to judge the results of his endeavors. She concluded that on the basis of the Wide Range Achievement Test, his reading skill was not commensurate with his age, grade, or intelligence level. She recommended remediation, but cautioned that the prognosis was uncertain.

Gilbert's reading expectancy was approximated at 6.0 which indicated a vocabulary disability of 4.1 years and a comprehension disability of 3.8 years.

Gilbert was a challenging candidate. He read at about the second-grade level and, with factors like intelligence and years in school considered, his expectancy was grade six. The Gates-McKillop scores alluded to weakness in word analysis, consonant blends, digraphs, vowel sounds and generalizations, word parts, blending, syllabication, and phrasing skills. His Gates-MacGinitie scores indicated he lacked power in the application of the skills he did have.

On the basis of the above, the following remediation plan was developed.

Vocabulary - Since he knew only 172 of the 220 Dolch Basic sight vocabulary words, immediate attention should be given to, first, checking comprehension of unknown words and, second, providing drill cards with the word in isolation on one side and in a sentence on the other.

Word Attack - "Cracking the Code" is recommended as an instructional vehicle since it is designed to teach decoding to students in the intermediate grades who have not yet mastered an independent word-attack procedure. The program's interest level is intermediate and above, and introduces the child to patterns of sound-spelling relationships which will, for the most part, be new. The reader work-text provides a structured pattern.

Comprehension -- A variety of comprehension skills need further development and reinforcement. The following materials should be used:

Reading for Concepts
Reading for Meaning
New Practice Readers
Barnell Loft Specific Skill Series:
    - Getting the Facts
    - Using the Context
    - Getting the Main Idea
    - Drawing Conclusions

Budget

The 1969-70 budget for the Diagnostic Reading Clinic is reproduced below. The funding period began on September 1, 1969, and ended August 31, 1970.

Instructional Salaries and Fringe Benefits*	$ 224,265
Clerical Salaries and Fringe Benefits	8,325
Office Supplies	490
Instructional Materials and Supplies	18,000
Library Materials and Textbooks	1,000
Consultants for Inservice	250
Travel -- Professional Meetings	500
Nurse Salary and Fringe Benefits	8,800
Dispensary Supplies	100
Building Maintenance and Security Services	10,000
Phone and Utilities	420
Audiovisual Equipment	3,600
Station Wagon Operation and Maintenance	6,800
Drivers Salaries and Fringe Benefits	33,000
Food Services	3,000
Total	$ 318,550

* Includes entire instructional staff -- clinicians, psychologists, speech therapist, instructional aides, and one-third administrative cost.

It was estimated by the program evaluator (Fleming, 1970) that Clinic services were provided at a per-pupil cost of about $286 for long-term pupils, $191 for moderate-term pupils, and $140 for short-term pupils. Calculation of the cost of each month of grade-equivalent growth revealed that an additional $17 expenditure was needed for each unit of growth exhibited by long-term pupils, as compared to about $14 per unit for moderate- and short-term pupils.

EVALUATION

The most comprehensive evaluation of the Diagnostic Reading Clinic is described in the 1969-70 academic year evaluation report (Fleming, 1970). The results described here differ somewhat from those described in that report since format requirements of the series necessitated some reanalysis of raw data. Reanalysis was conducted by Cleveland Public Schools' Division of Research and Development and the American Institutes for Research.

During the 1969-70 school year the Clinic served a total of 532 public and nonpublic school pupils, 64 percent of whom were boys. Fifty-one percent of the served population were in the fourth grade, 27 percent were fifth graders, 19 percent were from the sixth grade, and the remaining 3 percent were seventh graders.

Forty-two percent of the participants were assigned to the long-term service group averaging approximately 5.1 months service, 45 percent received moderate-term service averaging 3 months, and 12 percent were in the Clinic for a short-term period averaging 2.5 months. On the basis of diagnostic testing, it was determined that most of the children had decoding process difficulties. Their most pressing educational needs required further development of (1) oral and written language understanding, (2) communication skills, (3) concentration skills, (4) work-study skills, and (5) self-concept.

For evaluation purposes, a random sample of 62 students was selected from the Clinic population. The sample was composed of 42 boys and 20 girls from 22 target Title I schools. The distribution of the sample across grade levels corresponded closely to that of the entire Clinic population.

The primary objective of the evaluation was to determine the reading achievement gains made by the Clinic's participants. Their reading performance, difficulties, habits, and final home classroom marks were also determined via classroom teacher and parent questionnaires. The findings of each of these data collection efforts are summarized below.

Reading Achievement

The participants' reading achievement gains, as measured by the Gates-MacGinitie Reading Test administered prior to the start and upon completion of service, were compared to the gains expected on the basis of test norms for each service period. Each student was pretested on a form of the test appropriate for his reading level and posttested with an alternate form at the appropriate grade level. The time between pretest and posttest was directly related to the child's progress and the service group of which he was a member. An average of 5.1 months elapsed between pretest and posttest for the long-term service group, 3.0 months for the moderate-term service group, and 2.5 months for the short-term group.

The number of participants in each service group, their average term of service in months, and their grade-equivalent pretest, posttest, and gain scores on the vocabulary and comprehension subtests of the Gates-MacGinitie Reading Test are summarized in Table 1.

TABLE 1

Gates-MacGinitie Reading Test Grade-Equivalent Pretest, Posttest, and Gain Scores for the Three Service Groups

Service Group	N	Average Service	Vocabulary			Comprehension		
			Pre	Post	Gain	Pre	Post	Gain
Long Term	17	5.1	3.03	3.87	.84**	2.43	4.29	1.86**
Moderate Term	35	3.0	3.58	4.17	.59**	2.89	4.40	1.51**
Short Term	10	2.5	3.24	3.71	.47*	3.11	3.72	.61**

* $p < .05$
** $p < .01$

The reading grade-equivalent gains illustrated in Table 1 were subjected to t tests for repeated measures on the same sample. All gains were found to be statistically significant ($p < .05$, one tailed). The grade-equivalent gains shown in columns six and nine of Table 1 can be expressed in terms of months by moving the decimal point one place to the right. If this is done, it can be seen that the gains for each group were greater than the expected gain for "average" readers. It can therefore be concluded that the gains for all three groups in vocabulary and comprehension were statistically and educationally significant.

Also illustrated by Table 1 is the fact that all three service groups made greater gains in comprehension than in vocabulary. In terms of rate of gain (gain divided by months of service) for the comprehension subtest, the moderate-term service group had 5.03 months per month; the long-term group, 3.65 months per month; and the short-term group, 2.44 months per month. A similar pattern was observed for rates of gain on the vocabulary subtest -- the moderate-term group again had the largest rate of gain, 1.97 months per month; the long-term group had the next largest rate of gain, 1.88 months per month; and the short-term group had the smallest with 1.65 months per month.

On the basis of these data, it can be concluded that the Diagnostic Reading Clinic achieved its goals of producing statistically and educationally significant reading gains.

Classroom Teacher and Parent Ratings

At the end of the service year, classroom teachers were asked to rate the Clinic participants' reading performance and behavior in the classroom. In terms of use of reading materials in the classroom, the teachers rated 35 percent of the students as being able to handle classroom reading materials "always" or "most of the time," 53 percent as "sometimes" being able to handle the materials, and 11 percent as "rarely" able to handle the classroom materials.

The final grades assigned to the Clinic's participants in the home classroom are summarized in Table 2. The group with the greatest reading difficulties prior to Clinic service, the long-term group, all received passing grades (C or D) in reading from their regular classroom teachers. Twenty percent of the moderate-term group received an A or B, 78 percent received a C or D, and 3 percent received a failing grade. The short-term group all received passing grades with 10 percent receiving B, 70 percent C, and 20 percent D.

The distribution of final reading grades assigned across groups also appears in Table 2. Only 2 percent of all the students received a failing final reading grade, with all of the failures belonging to the moderate-term service group.

Classroom teachers also rated the classroom behavior of the Clinic's participants at the end of the school year in terms of (1) participation in class, (2) written assignments, (3) self-confidence, (4) rapport with classmates, and (5) attitude toward school. Table 3 summarizes the distribution of students by improvement categories for each of the behaviors rated. Approximately 80 percent of the students showed "some" to "very much" improvement in each of the behavior areas rated.

TABLE 2

Clinic Participants' Final Reading Grades Assigned by their Classroom Teacher

Service Group	A	B	C	D	F
		Final Reading Grade			
Long Term			59%	41%	
Moderate Term	6%	14%	49%	29%	3%
Short Term		10%	70%	20%	
Total Group	3%	10%	55%	30%	2%

TABLE 3

Classroom Teacher Ratings of Clinic Participants' Improvement

	Behavior Rated				
Improvement	Participation	Assignments	Confidence	Rapport	Attitude
None	6%	10%	13%	13%	5%
Some	53%	68%	45%	27%	47%
Very Much	34%	16%	37%	47%	29%
Doesn't Apply	2%	-	-	6%	10%
No Answer	5%	6%	5%	6%	10%

Classroom teachers were also asked in what behavior areas the Clinic's participants made the greatest improvement. They reported the greatest changes in (1) mastery of word analysis skills, (2) knowledge of sight words, (3) motivation to master reading, (4) self-confidence, and (5) comprehension.

A parent questionnaire was sent to the homes of the Clinic's participants. On the basis of a 60 percent return, the following conclusions were drawn. Eighty percent of the parents reported that their children enjoyed reading more, took more books from the library, and read more at home. Fifty-two percent stated that their children enjoyed attending the Clinic. The parents were unanimous in recommending that the Clinic services be continued.

In summary, the Diagnostic Reading Clinic achieved its goals in terms of its participants' reading achievement, teachers' perceptions of the participants' classroom behavior, and parents' reports of their children's home behavior.

SOURCES FOR FURTHER INFORMATION

Personnel

For information concerning the Diagnostic Reading Clinic, the following individuals may be contacted:

Dr. Margaret Fleming, Supervisor
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Cleveland Public Schools
1380 East Sixth Street
Cleveland, Ohio 44114
(216) 696-2929

Mrs. Pauline Davis, Director
Diagnostic Reading Clinic
4940 Carnegie Avenue
Cleveland, Ohio 44103

References

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THE FERNALD SCHOOL REMEDIATION OF LEARNING DISORDERS PROGRAM

LOS ANGELES, CALIFORNIA

PROGRAM OVERVIEW

From 1966 through 1969 the Fernald School at the University of California in Los Angeles carried out a research and demonstration program which provided highly individualized remedial instruction to an advantaged and a disadvantaged group of children with similar learning disorders. One objective of the project was to determine if the same remedial program was equally effective with disadvantaged and advantaged children. A second objective was to compare the Fernald disadvantaged children's achievement to that of two similar disadvantaged groups -- a group that received some special reading instruction at their home schools from Fernald teachers (the Enrichment group) and a control group that received no special treatment.

Children from grades two through eight were served by the program. All students were at least 1.5 years behind the national norm in school achievement, were of average intelligence, and were free from severe emotional and neurological problems. The disadvantaged students were drawn from families in the Los Angeles area that had an average annual income of $3000 or less. The advantaged children were selected from the tuition-paying clients at the Fernald School. The groups were matched with respect to age, IQ, and severity of learning disability. Two-thirds of the disadvantaged children were black.

The main features of the Fernald instructional program were (1) individualized diagnosis, instruction, and assessment; (2) a low student-teacher ratio; and (3) a distinctive school environment which resulted from these and other special characteristics. The Enrichment program provided by Fernald teachers to a group of disadvantaged students in their home schools made use of many of the techniques regularly employed at the Fernald School. The Enrichment group, however, received less intense special instruction, averaging only three to five hours per week. The children in the control group received no special instruction other than that provided in their home schools.

The staff consisted of certified teachers experienced in teaching children with learning disorders; a supervising teacher; and student trainees in education, social work, and psychology. The student trainees worked with the program children under the supervision of the Fernald teachers.

Pooled evaluation data for the three years of operation indicated that (1) advantaged and disadvantaged students benefited equally from the Fernald School program, and (2) disadvantaged students attending the

Fernald School made greater achievement gains than either the Enrichment or the control groups. No significant differences between the groups on noncognitive measures were found.

PROGRAM DESCRIPTION

Context and Objectives

The Fernald School's program of remedial instruction for disadvantaged children began in 1966. As a facility of the Psychology Department at UCLA, the Fernald School has been concerned since its founding in 1921 with the diagnosis and treatment of learning disorders, particularly those not due to mental retardation or severe neurological or emotional pathology. Their program for disadvantaged children described here, however, represented a departure from the school's previous restriction to clients from families that could afford tuition.

Students selected for the program were male, of average intelligence, free from severe neurological or emotional disturbances, and at least 1.5 years retarded in basic school skills. The advantaged children were all tuition-paying students enrolled in the Fernald School and were mostly upper- or middle-class whites. The disadvantaged students in the program were drawn from the mid-city area of Los Angeles. The area was considered a "poverty pocket" since the average family income was approximately $3000 a year. Roughly half of the children were between the ages of 8 and 12; half were 13 or 14. Two-thirds of the disadvantaged students were black, and the remaining third were Mexican-American or white. During the first academic year 60 children were in the program; during each of the following two years, there were 80 students.

Each academic year a different group of students was bused to the Fernald School and participated in its highly individualized remedial program. In addition, an "Enrichment" group of 30 students received a special remedial program from the Fernald staff in their home schools. Finally, there was a control group which did not receive any special treatment.

The three factors that Fernald staff members saw as differentiating the experience of students at Fernald from that at other schools were (1) the degree to which the program was individualized, (2) the low student-teacher ratio, and (3) the total-school environment which resulted from these and other special characteristics. In order to facilitate individualized diagnosis and instruction, the pupil-teacher ratio was kept small. The philosophy behind the general school environment was that it should be one where the student could feel that he was a human being worthy of respect; where he would know what was expected of him and when; and where he could find satisfaction in learning.

Personnel

Because the Fernald School functioned regularly as a research, demonstration, and training facility at UCLA, the number of personnel listed here represents more than would be needed simply to operate the instructional program. For each staff member, the approximate percentage of time devoted to the program is indicated in parentheses. The student trainees involved in the program were unpaid.

Director (20 percent). The school director was a University professor with a doctorate in psychology. Since he devoted his time to research design, data collection, and analysis, his services would not be essential in implementing only the instructional program.

Associate Director (60 percent). The associate director also had a Doctor's degree. She had several years of education experience and had worked with educationally handicapped children. She helped supervise the instructional program in the school and coordinate all phases of the project.

Teachers (4, full time). All four held teaching certificates and had special training and experience in teaching children with learning disorders. They were responsible for individualizing the program for each child. In addition to their instructional responsibilities, they were in charge of training university undergraduates who were assigned to their classrooms. Training occupied approximately 30 percent of their time.

Teaching Supervisor (90 percent). The supervisor had a Master's degree, teaching experience, and special training related to learning disorders. Her functions included helping with instruction and training.

Supervisors in Psychology and Social Work (1 each, 10 percent). Both held university appointments and were involved in supervision and training of the graduate assistants in their respective fields.

Coach (75 percent). The coach had a Bachelor's degree and graduate training in physical education and learning disorders. He supervised the physical education program for all students, which, like other aspects of the Fernald program, emphasized individual progress even within the context of competitive sports.

Assistant Coaches (2, 75 percent). The assistant coaches were undergraduates from the Physical Education Department. They worked and played with students on the athletic field and were available for individual counseling whenever necessary.

Clerical and Library Staff (6, 40 percent). They handled library, clerical, and accounting matters.

Graduate Student Assistants (5 in social work, 4 in psychology, 6 in education; all approximately 20 percent). The graduate assistants in social work and psychology received practical experience while working with students from the entire school population. Their services included counseling for students and visits to families. The education assistants were involved with assessment, educational therapy, and individual program development.

University Students (70 for all four classrooms; 7 hours each per week except during university vacations). These undergraduate students in education gained classroom experience by working with youngsters in the Fernald School. Under the supervision of the regular teachers, they helped with individual and group activities.

Bus Driver (part-time). The project hired bus service for transporting the disadvantaged students to the Fernald School.

Methodology

The main components of the Fernald School program were (1) individualized instruction, (2) low student-teacher ratio, and (3) a special school environment.

Individualized instruction. The Fernald program consisted, in the main, of highly individualized remedial instruction prescribed in accordance with a careful diagnosis of each child's specific problems and needs. Thus, specific teaching objectives were different for each child. His learning goals were set so as to permit him to experience success in learning tasks which had previously provided him with consistent failure. Teachers adjusted their instructional techniques to fit the individual student's rate, style, and extent of learning. This process had four phases: (1) individual assessment of students' strengths, weaknesses, and limitations; (2) individual planning of each student's program; (3) individualization in carrying out instruction; and (4) individual evaluation of progress.

The assessment process typically began with compilation of all available educational, medical, psychological, and socio-cultural information on a student. This was the basis for formulating a total remediation program. Informal diagnosis of student progress and problems was continuous, and programs were altered as new information indicated the need.

The individually planned programs might include psychotherapy, social-work contact with the family, or special motor-coordination training as well as classroom instruction. Classroom instruction was, however, the central emphasis of the project. Each lesson was designed to remedy deficiencies in areas such as auditory discrimination, visual perception, or comprehension skills which were believed to be contributing to a particular student's learning problems. The emphasis was on the basic school skills of reading, language, and mathematics and an attempt was made to give students skill-developing activities which fit their strongest subject-area interests. Each student also took part in a daily physical education program and a variety of special project activities such as art, music, drama, crafts, and discussion groups.

The teacher attempted to structure each task so that the student was striving to perform at a slightly higher level than he had before. Scheduling of activities and use of materials was kept flexible in order to capitalize upon favorable student response to certain activities and to allow for changing activities as necessary. Since each student's criterion for success on a task was a slightly better performance than his previous one, norms and competition with others were not important. Teachers tried to enhance each student's feelings of success through praise and positive reinforcement and to encourage students to evaluate their own progress.

Low student-teacher ratio. Another important feature of the instructional system at Fernald was the low student-teacher ratio and the staffing pattern of instructional teams in each classroom. There were four classrooms, each limited to a maximum of 20 students. In each classroom there were an average of three or four undergraduate trainees per hour under the supervision of a demonstration teacher. The resulting student-adult ratio of about four to one, however, included many trainees who had little prior experience in working with children. The teacher retained responsibility for each pupil and his individual program. This staffing pattern resulted in a classroom environment of considerable variety. During a typical class session, one child might be working alone on an activity; another might be working individually with a student trainee; and others might be working in small groups directed by student trainees. The teacher could move from place to place, working with individual pupils or small groups while observing and helping the undergraduate trainees.

During the three-year course of the program, the use of interdisciplinary teams in each classroom was established. These teams included the teacher, other professionals, and graduate trainees in the fields of education, psychology, and social work. The team met weekly to discuss general strategies for instruction and specific remedial plans for students.

Special school environment. The general atmosphere of the classroom at Fernald was one of great freedom. The children were free to do anything which would not interfere with other students' attempts to learn or a teacher's attempts to teach. The emphasis on special projects and activities in addition to the basic skills curriculum was intended to allow students to pursue idiosyncratic interests, to succeed in areas of value to them, and to demonstrate to others their own special abilities and capacities. By such means the school hoped to foster a sense of joy in learning in children who had known only failure.

Schedule and facilities. The school operated on a typical 9:00 am to 3:00 pm schedule with two 10-minute breaks in addition to lunch. Although each student's daily program might be different, the mornings were generally devoted to academic activities concentrating on basic skills. Every day all students participated in physical education with the coaches for 45-50 minutes. After lunch, students were often involved in work in various content areas according to needs and interests. Also, each student had some special project time, usually three to five hours per week. This time was used for individual projects, small or large group activities, or field trips.

Each classroom at the school was self-contained, had its own bathroom facilities, and its own outdoor patio. Students often gathered for lunch and breaks on the outdoor patio areas.

Materials and equipment. The school maintained a comprehensive stock of materials including the usual workbooks, texts, kits, and games found in basic skills programs, plus a wide array of miscellaneous books and magazines. Since instruction was individually prescribed, teachers seldom used any one set of materials predominantly. Students were frequently given assignments in areas that were of special interest to them; thus an automobile magazine might serve as instructional material in reading. Often a student's own stories, either dictated or written by him and typed up by a staff member, would become his reading material. Special teacher-devised materials were also used. The following list gives some examples of commercial materials available in the program.

Examples of Materials/Equipment:	Publisher/Manufacturer:
Sullivan Programmed Reading	McGraw Hill
SRA kits	Science Research Assoc.
Readers Digest Skill Builders	Readers Digest Pub. Co.
Deep Sea Adventure Series	Field Educational Pub. Co.
Morgan Bay Mystery Series	Field Educational Pub. Co.
Tachistoscopic filmstrips	Educational Development Lab.
Language Master	Bell and Howell
Miscellaneous magazines	various
Paperbacks	various
Typewriters	various
Slide projectors	various

The program also had copies of all the California State texts required in regular public schools. The school library was extensively used as a source of special interest materials.

Demonstration activities for the Enrichment group. The Enrichment group consisted of disadvantaged students who remained at their schools (10 students each at three different schools) and received instruction from visiting Fernald teachers. The primary objective of the sessions, which totaled three to five hours per week, was to improve reading and language skills through Fernald-type instruction. Fernald teachers came to the schools and worked with groups of three or four students who left their regular classrooms for one hour per day, three days per week. The Fernald sessions supplemented students' regular reading instruction. Because pupil progress and contact with regular teachers proved insufficient under this format, it was changed during the second year and the school Enrichment staff took total charge of the reading program of participating students.

During 1968-69, the third year of the study, the Enrichment program used teams consisting of a teacher and an aide who visited each school and worked with the small groups. In providing these demonstration activities, the teams used the same individualized instruction methodology practiced at Fernald. Each child's needs and abilities were individually assessed and an instructional program was designed specifically for him. The regular teachers were encouraged to observe the effects of the individualized approach, consult with the visiting Fernald teachers, and introduce individualized instruction into the regular classroom program. Testing at the end of the year provided data which were used in conferences with regular teachers and parents to help plan the student's future activities.

Personnel training activities. The primary goal of the school's training activities was to improve the effectiveness of both present and prospective professionals in working with disadvantaged children. Pre- and inservice training activities included workshops, lectures, consultation activities, and presentations at professional meetings.

Pre-service training methodology focused on early and extensive experience with disadvantaged children. The approach was designed to help produce individuals who were truly effective in working with the disadvantaged.

Inservice training involved visits by professionals to observe the procedures used to individualize and integrate the classroom programs.

The demonstration activities provided by Fernald staff in connection with tutoring the Enrichment group were designed to serve a training function, but since most of the regular teachers in the participating schools could meet with the Fernald School teachers only for a few minutes daily, opportunities for discussion of procedures in individualization were necessarily limited.

Another activity of the Fernald School was the development of videotape recordings. The objective was to upgrade the communication of ideas concerning such topics as remediation, individualization, and integration by providing detailed and concrete demonstrations of specialized techniques. The staff produced a number of professional-quality taped sequences, but concentrated on production of "spontaneous" videotapes of regular activities as they were in progress. These tapes have been successfully used for training, and the staff hopes eventually to distribute demonstration videotapes using some of the previously recorded, high-quality taped material.

Specific Example of Methodology

The following example was excerpted from a case report written by a school staff member and illustrates the four phases of the instructional process typical of the school program, i.e., (1) individualized assessment of the student's strengths, weaknesses, and limitations; (2) individual planning of each student's program; (3) individualization in carrying out instruction; and (4) individual evaluation of progress.

Jeff was a black, 13-year-old boy of low-average intelligence with basic skills, especially in the verbal area, in the second and third stanines. At the beginning of the school year, the California Achievement Test was administered to all Fernald School students. Jeff's grade-level scores showed that he was two to three years below grade level in basic school skills. He was also something of a classroom behavior problem. Jeff's overall classroom attitude and behavior led his teacher to request additional assessment data early in the school year. In general, such assessment is concerned with an individual's performance in a number of key areas, e.g., sensory acuity, perceptual-motor skills, language, higher cognitive processes, social-emotional functioning, and basic school skills. This assessment is accomplished over a period ranging from six to eight hours of individual testing. The additional assessment data requested by the teacher provided the necessary information for deciding whether or not the overall treatment program should be expanded in its scope, and pinpointed a number of specific strengths and weaknesses which allowed the teacher to plan her remediation program in greater depth.

Specifically, Jeff's program was designed to strengthen his study habits and his basic skills in reading, mathematics, and language. In addition, efforts were made to increase his confidence and to help him develop a more positive attitude toward learning by involving him in frequent success experiences.

Jeff's program in language skills furnishes an example of the individualized instructional approach used in all subjects. It rapidly became evident that language skills was one area where Jeff felt comfortable and successful. He was always willing to write. He wrote on a variety of topics, and although his sentences were very simple in structure they were communicative and meaningful. The teacher was able to use his written products diagnostically and soon evolved a program which included encouraging Jeff to write more complex sentences and longer stories. One strategy which proved to be very successful in eliciting greater length was to have Jeff dictate his stories into a tape recorder before putting them on paper. As the year progressed, it became evident that some of Jeff's spelling difficulty was due to his difficulty in associating particular combinations of sounds with their corresponding letters; therefore some phonetic work was instituted. Since Jeff had a particular liking for machine work, the Language Master (a machine which is designed to facilitate individual instruction in word-analysis skills) proved to be an appropriate and effective tool in this connection.

Counseling was also a part of Jeff's program; he met one hour a week with a psychology trainee for several months. The goals of these sessions were to help him learn to cope with classroom demands in an appropriate manner, to gain greater competence in dealing with social situations, and in general to facilitate a number of attitude changes.

Using continual evaluation of his progress throughout the year, Jeff's teacher was able to make appropriate adjustments in his program. His initial resistance to receiving remedial assistance diminished. He became more involved in his school work and with his classmates. At the end of the school year, the California Achievement Test was administered again and Jeff's overall gains averaged 1.7 years.

Budget

An estimate of costs for the instructional program carried out in the four classrooms at the Fernald School was provided by the school staff. Their estimates were based on the 1968-69 budget, adjusted for the percentage of time allotted by staff members to the project. The estimates also excluded staff involved only in activities which were not essential to the instructional program.

1968-69 Instructional Budget

Salaries	
Teachers	$ 36,000
Teaching Supervisor	12,000
Associate Director	10,000
Coach	6,000
Assistant Coaches	3,750
Clerical and Library Staff	14,400
Plant Maintenance and Supplies	12,000
Bus Services	5,200
Total	$ 99,350

Based on the above budget, per-pupil cost for 80 students, advantaged and disadvantaged, was approximately $1242 for 1968-69.

The per-pupil cost of approximately $1242 per year for the program represents an addition of about $600 to the amount that would normally be spent on these children each year by the Los Angeles School District. It may also be compared to the 1968-69 per-pupil fee of $1200 for the regular tuition-paying Fernald students.

EVALUATION[1]

During the three academic vears from September 1966 through June 1969, two groups of students were involved in the Fernald program. One group was selected from a disadvantaged population of students attending Los Angeles public schools and the other from the advantaged clients enrolled in the Fernald School. The first group was termed the "disadvantaged" group and the second was referred to as the "advantaged" group since it was composed of children from families in a financial position to send their children to a private school. The children in both groups were male elementary or junior high students of at least average intelligence but 1.5 or more years retarded in basic school skills. None of the children had severe neurological or emotional difficulties. In addition to meeting these criteria, the disadvantaged students had to live in an area that was designated a poverty pocket, i.e., an area in which the average family income was approximately $3000 per year.

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[1] This summary is based upon the information contained in Feshbach's (1969) final report.

Each year the counselors from feeder schools generated a list of children who met the disadvantaged group criteria. Approximately 90 percent of the children on the list each vear were black. The disadvantaged children selected from the list were grouped into triplets, matched for age, IQ, race, and severity of learning disability. From each triplet, one student was randomly assigned to the Fernald School program, another to the Enrichment program, and the third was assigned to the control group which received no special treatment.

The selection and assignment process resulted in four groups of children corresponding to the four treatments: (1) an advantaged group that received the program at Fernald School, (2) a disadvantaged group that received the program at Fernald School, (3) a disadvantaged group that received the Enrichment program at their home schools, and (4) a disadvantaged control group that received only their regular school experience. During the first academic year 10 junior high and 10 elementary students were in each of the four groups. Ten additional children were placed in the elementary Enrichment and control groups during subsequent years. A total of 60 advantaged and 60 disadvantaged children received the Fernald treatment, 80 disadvantaged children had the Enrichment treatment, and 80 children served as controls during the three years covered by this description.

The broad objective of the Fernald evaluation was to determine the impact of the Fernald School's intensive, individualized remedial program upon the learning skills, aspiration levels, and self-attitudes of culturally disadvantaged children with learning disabilities. More specifically, the evaluation was concerned with (1) determining if the Fernald program had differential effects on disadvantaged and advantaged students with similar learning handicaps, and (2) comparing the impact of the Fernald program with that of the Enrichment and control treatments. To achieve these evaluation objectives the children in the four groups were administered a battery of tests at the beginning and end of each academic vear. Data were pooled across years and then the pretest-posttest difference or "change" scores of the four groups were compared.

A total of 18 different instruments were used one or more times during the three years of the project, but only six were consistently administered at the beginning and end of each school year: (1) the California Achievement Test (CAT), (2) the Wechsler Intelligence Scale for Children (WISC), (3) the Test Anxiety Scale for Children, (4) the Vocational Checklist, (5) the Ethnic Attitudes Instrument, and (6) the Attitude Survey.

Throughout the evaluation a two factor (treatment by grade) analysis of variance model was used for data analysis. The treatment factor had four levels corresponding to the four instructional modes, and the grade factor had two levels corresponding to the elementary and junior high categories. Primary analyses were done on pretest-posttest differences or "change" scores.

Similar analyses of variance were conducted on the pretest scores to determine if there were any statistically significant group differences prior to treatment. Although the children were initially matched, pretest score analyses indicated that there were statistically significant pretreatment differences between the groups on most tests. However, since it was determined that there were no relationships between initial pretest scores and amount of gain indicated by the change scores, variance analysis of change scores was considered the appropriate model for statistical analysis. To further support the conclusions reached by variance analysis, however, similar 4 x 2 covariance analyses on the posttest scores corrected for the pretest differences were conducted. In most cases, the conclusions reached by covariance and variance analysis models were essentially the same.

Achievement Test Results

The mean overall grade placement on the CAT for the four treatment groups at the two grade levels is summarized in Table 1. The 4 x 2 variance analyses on those data indicated that only the main effect of treatment was statistically significant ($p < .0005$). Statistical comparisons of the group means indicated that (1) the gains made by the two Fernald groups (advantaged and disadvantaged) were not significantly different, (2) the disadvantaged Fernald group made a gain that was significantly greater than either the Enrichment or control group gain ($p < .0005$, *F* test), and (3) the gains made by the control and Enrichment groups were not significantly different. It can be concluded that the Fernald instruction was equally effective for the advantaged and disadvantaged groups and that it was more effective than either the Enrichment or control treatments.

The Fernald groups made grade-equivalent gains of approximately one year during the nine months between test administrations, while the other groups made gains approaching seven months (see Table 1). Since the gains made by the Fernald groups were greater than would be expected of a group of "average" children during a corresponding period of time in a regular classroom (i.e., .9 grade-equivalent units), their gains can be considered educationally as well as statistically significant.

TABLE 1

California Achievement Test Grade-Equivalent Change Score Means
(Data Pooled across Academic Years)

		Fernald Adv.	Fernald Disadv.	School Enrich.	Control
Elem.	Means	1.08	1.06	0.68	0.75
	N	32	28	39	36
Jr. Hi.	Means	1.04	1.10	0.57	0.52
	N	28	28	28	27
Total	Means	1.06	1.08	0.63	0.65
	N	60	56	67	63

The CAT consists of three subtests -- Reading, Arithmetic, and Language Arts -- each of which has two subscales. The overall grade-equivalent score discussed above is based on a combination of the scores made on these six scales. The scores made by the various groups on these subtests and subscales are described below. Subtest and subscale scores highlight the specific achievement areas which were most affected by the Fernald treatment.

Table 2 illustrates the mean grade-equivalent change scores made by the various groups on the CAT Reading subtest. Again the two Fernald groups were not significantly different; the disadvantaged Fernald group made a significantly greater gain than either the Enrichment ($p < .025$, F test) or the control group ($p < .05$, F test), and the Enrichment and control groups were not significantly different in their gain. Since the Fernald group gains were greater than the expected gain for average children during the nine-month period between testing, they can be considered educationally as well as statistically significant.

The Reading Achievement subtest of the CAT consists of two subscales: Reading Comprehension and Reading Vocabulary. Analysis of variance of change scores on these two subscales indicated that the differences in the groups' Reading Achievement were largely due to the greater gains made by the Fernald children in Reading Comprehension.

TABLE 2

California Achievement Test Reading Grade-Equivalent Change Score Means (Data Pooled across Academic Years)

		Fernald Adv.	Fernald Disadv.	School Enrich.	Control
Elem.	Means	0.98	1.02	0.74	0.74
	N	32	28	39	36
Jr. Hi.	Means	1.02	0.90	0.56	0.58
	N	29	28	28	27
Total	Means	1.00	0.96	0.67	0.67
	N	61	56	67	63

Vocabulary treatment differences were not found to be statistically significant, whereas Reading Comprehension treatment differences were ($p < .005$). The gains made by the Fernald groups were significantly different from and greater than those made by the other groups ($p < .05$, F test). Their gains were also greater than the expected gain for average children and therefore can be considered educationally significant.

The change scores on the Arithmetic Achievement subtest of the CAT appear in Table 3. Analysis of variance indicated that there were statistically significant treatment effects ($p < .0005$) favoring the Fernald groups, especially at the junior high level. The gains made by both of the Fernald groups also appear to be educationally significant. Analysis of the change scores for the Arithmetic Reasoning subscale of the Arithmetic Achievement subtest indicated that the disadvantaged Fernald group made significantly greater gains than the comparison group only at the junior high level ($p < .005$). However, on the Arithmetic Fundamentals subscale, the Fernald gains were significantly greater at both grade levels ($p < .001$). The gains made by the Fernald disadvantaged group were also found to be educationally significant in both subscales.

TABLE 3

California Achievement Test Arithmetic Achievement Grade-Equivalent Change Score Means (Data Pooled across Academic Years)

		Fernald Adv.	Fernald Disadv.	School Enrich.	Control
Elem.	Means	1.12	1.05	0.74	0.74
	N	32	28	39	36
Jr. Hi.	Means	1.07	1.07	0.49	0.40
	N	28	28	28	27
Total	Means	1.10	1.06	0.63	0.60
	N	60	56	67	63

Change scores on the Language subtest of the CAT appear in Table 4. Again the disadvantaged Fernald children achieved the greatest gain. Their gain was found to be significantly different from the Enrichment and control groups ($p < .05$, F test), but not significantly different from the advantaged Fernald group. On the basis of the change score analysis on the Spelling and English Mechanics subscales of the Language subtest, it was concluded that the total Language subtest gain made by the Fernald disadvantaged group was due primarily to their English Mechanics subscale performance.

On the basis of the results detailed above, it can be concluded that the Fernald disadvantaged children made reading, arithmetic, and language arts achievement gains that were equivalent to the advantaged group's gains and consistently greater than the Enrichment and control groups' gains. Also, the differences favoring the disadvantaged Fernald group were generally statistically significant and, when compared to the expected gain for average students, educationally significant.

WISC Results

The Comprehension, Vocabulary, and Arithmetic subscales of the WISC were administered at the beginning and end of the second and third academic years of the project. Change score variance analyses indicated that there were no significant differences between the groups on either

TABLE 4

California Achievement Test Language Grade-Equivalent Change Score Means (Data Pooled across Academic Years)

		Fernald Adv.	Fernald Disadv.	School Enrich.	Control
Elem.	Means	0.94	1.15	0.87	0.77
	N	32	28	39	36
Jr. Hi.	Means	0.98	1.20	0.54	0.53
	N	28	28	28	27
Total	Means	0.96	1.18	0.73	0.67
	N	60	56	67	63

the Comprehension or Vocabulary subtests. However, as illustrated in Table 5, the Fernald disadvantaged group made a significant increase in arithmetic performance which was found to be reliably greater than that achieved by the other disadvantaged groups ($p < .05$, F test). The Fernald disadvantaged group gain was also greater than the gain made by the advantaged children ($p < .01$, F test). The arithmetic performance gain made by the Fernald disadvantaged on the WISC supports the results found on the Arithmetic subtest of the CAT.

Noncognitive Results

The Test Anxiety Scale for Children was administered as a pre- and posttest in order to determine whether participation in the Fernald School program resulted in a significant decrement in school-related anxiety. Analysis of variance of the change scores indicated that although all groups manifested a decrease in anxiety scores (with the Fernald disadvantaged group manifesting the largest decrement) none of the differences was statistically significant.

The Vocational Checklist was administered to determine whether the Fernald experience produced any change in the children's perceptions of the opportunities available to them and the level of vocational goals they set for themselves. Change score analysis indicated that the Fernald

TABLE 5

Wechsler Intelligence Scale for Children Arithmetic Change Score Means (Data Pooled across Academic Years)

		Fernald Adv.	Fernald Disadv.	School Enrich.	Control
Elem.	Mean	-0.11	2.00	0.00	0.59
	N	19	19	32	32
Jr. Hi.	Mean	0.63	1.32	-0.28	-0.39
	N	19	19	18	18

program was not effective in raising the aspirations of the Fernald junior high boys. At the elementary level, however, the Fernald disadvantaged boys did show an elevation in aspiration reliably greater than the advantaged group.

The Ethnic Attitude Instrument was administered to the boys to determine if the integration experience at the Fernald School had any effect on their perceptions of their own and other ethnic groups. On the basis of change score analysis it was concluded that the results were not very illuminating since there were very few significant differences between the Fernald disadvantaged and the Enrichment or control groups in the degree and direction of change.

The Attitude Survey, a detailed questionnaire dealing with the students' attitudes toward classwork, sports, authority, and peer-relations, was not fully developed until the end of the second year of the program and therefore was not administered until the third academic year. Analysis indicated that the number of children administered the final form of the test was so small and their change score variability was so large, that valid conclusions could not be drawn.

It appears that although the Fernald School had a strong impact on the cognitive achievement of its disadvantaged and advantaged pupils, the success of the program in the noncognitive domain was not convincingly demonstrated.

MODIFICATIONS AND SUGGESTIONS

One modification suggested by the program director was an expansion of the efforts to help students make the change from the program back to the regular school environment. It should be possible to duplicate some of the assignments they will have in the regular classroom and to use the same materials in program classes. A period of part-time scheduling in both schools might be devised, especially with older students, to aid in the transition.

SOURCES FOR FURTHER INFORMATION

Personnel

For information concerning the program, the following individuals may be contacted:

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HIGHER HORIZONS 100

HARTFORD, CONNECTICUT

PROGRAM OVERVIEW

Each academic year since its inception in 1965, the Higher Horizons 100 (HH 100) program has provided a remedial language and intensive counseling program to 100 disadvantaged ninth-grade students. The goal of the program is to improve the language skills, self-concept, and school adjustment of disadvantaged students free from serious emotional problems, of average intelligence, and with one to three years' reading retardation. Children are selected from eight feeder schools on the basis of the aforementioned criteria.

A team of six teachers and a guidance counselor run the program in a cluster of rooms within the Hartford Public High School. Since the students are specially selected, have their own unique curriculum and are separated from the other ninth-grade students in the high school, the program has a school-within-a-school atmosphere. Upon successful completion of a year in the program, the HH 100 students are transferred to the regular tenth-grade school program.

The HH 100 program is characterized by small classes, individualized instruction, intensive counseling services, and remedial language instruction integrated within a special ninth-grade curriculum. As an adjunct to the instructional program, a program of cultural activities, civic trips, and guest speakers is provided. As a school-within-a-school, HH 100 has the scheduling and curriculum flexibility required to individualize instruction and yet allow the entire student body and instructional team to participate as a group in various activities.

Program effectiveness is determined annually via a basic pretest-posttest evaluation design. On the basis of standardized achievement test change scores, it can be concluded that HH 100 has consistently improved the reading and writing skills of its students. These improvements were generally found to be statistically as well as educationally significant. Results in other areas of scholastic achievement have been somewhat less impressive. Attempts to assess the effects of the program in the noncognitive domain have been plagued with data collection and analysis problems.

PROGRAM DESCRIPTION

Context and Objectives

Welfare records and demographic studies of Hartford's City Planning Department indicate that more families move out of the city limits than enter, and that immigrating families are larger and poorer than emigrating families. Typically, too, new school enrollees bring more educational problems with them. They have worse school records, more serious language disabilities, and cause more classroom problems than emigrating students.

The Higher Horizons 100 (HH 100) program was designed to meet the special needs of these students, needs which centered on language deficiences and school adjustment problems. The program began in 1965 as a self-contained ninth-grade demonstration center on the campus of Hartford Public High School. The high school, the largest of Hartford's three high schools, enrolled over 3000 students in 1969. While black and Puerto Rican students constituted the largest percentage of youngsters from disadvantaged homes, a large portion of the white enrollment was also living in extreme poverty.

Nearly 60 percent of the Hartford Public High School student body lived in neighborhoods characterized by extensive public housing projects and steadily deteriorating, crowded living conditions. In 1969, nearly half of the children came from families receiving public assistance and 70 percent qualified for state and city financial aid. A large segment of the parents who were employed had few marketable skills, with many holding unskilled and semi-skilled jobs.

The high school enrollment was drawn from eight feeder schools, the same schools from which HH 100 youngsters were selected. To be chosen for the program, the student had to be recommended by his school counselor as a ninth grader of average intelligence with one to three years' retardation in reading and absence of serious emotional or adjustment problems. Following clearance by the HH 100 staff, nominees had to express their own willingness to participate in the program and obtain their parents' consent.

Funded under the Connecticut State Act for Disadvantaged Children since fall of 1965, the HH 100 program provided participants with language remediation in special ninth-grade classes for one year, after which students entered regular tenth-grade classes at Hartford Public High School. Guidance services, cultural activities, and modifications in curriculum materials and instructional techniques were cooperatively planned by the HH 100 team to increase the student's self-esteem in regard to his academic achievements. Since its inception, HH 100 has attempted to:

- Provide an atmosphere for experimentation, change, and development so that the particular learning problems of approximately 100 selected disadvantaged students could be successfully met.

- Assist the students in adjusting to regular high school patterns.

- Provide remediation for specific learning deficiencies, particularly in the areas of reading and speech.

- Expand the experiential backgrounds of the selected students beyond the levels which are currently attainable in their out-of-school environment.

- Develop in the students an improved self-concept in order to promote higher educational, vocational, and life goals.

Program effectiveness has been validated in terms of improvement in reading achievement, writing skills, general scholastic achievement, and self-concept.

Personnel

The qualifications and primary functions of the program's staff are discussed below. With the exception of the project assistant, all program staff devoted full time to the program.

Program Coordinator. The program coordinator, in addition to serving as the HH 100 English teacher, exercised general supervision over the program, conducted staff meetings, prepared program reports and budgets, and assisted in recruitment of HH 100 teachers. Her qualifications and experience were similar to those of her teacher colleagues.

Teachers (4 subject teachers, 2 language specialists). Teachers were responsible for providing ninth-grade instruction to their students in their particular subject specialties. Their subject specialties were English, mathematics, science, speech, reading (remedial), and regional studies (geography, civics, social studies). Each teacher was State-certified and had at least one year of teaching experience in his respective field. Teachers were selected by the program coordinator and the principal on the basis of their interest in the HH 100 philosophy and methodology.

Guidance Counselor. The guidance counselor was responsible for selecting and testing HH 100 students, coordinating with feeder-school counselors, conducting HH 100 orientation, planning each student's course of study, grouping classes, providing individual and group guidance, visiting homes of students, arranging field trips and speakers, and disseminating program information to the community. The guidance counselor also worked closely with the teachers to meet the specific needs of individual students. The counselor had four years of classroom teaching and eight years of counseling experience.

Project Assistant (three-fourths time). The project assistant held a Bachelor's degree in education and was working toward her Master's degree in guidance. In addition to performing secretarial and record-keeping duties for the project, she scored tests and tabulated data; ordered supplies and equipment; assisted the counselor in selection, testing, scheduling, and follow-up of students; and occasionally assisted students with homework or study assignments.

Methodology

The major features of the HH 100 program were: (1) language remediation, (2) individualized instruction, (3) team planning, (4) intensive counseling, and (5) cultural enrichment. Each of these features will be described in turn.

Provision for language remediation within each subject area. The development and strengthening of language skills was regarded as a team effort and was stressed in each class, regardless of content area. The student not only received language arts instruction every day from his English teacher and his speech (or reading) teacher, but also from his math, science, and regional studies teachers who integrated instruction in reading, writing, and vocabulary skills into their daily content-oriented lessons. Similarly, reading, speech, and English teachers occasionally integrated content from the other subject areas into students' oral and written exercises.

Individualized instruction. Operating as a school-within-a-school with an enrollment of only 100 ninth graders, the program provided students with a semi-cloistered environment in which their learning problems received much more attention than was possible in the typically overcrowded classroom. Classes were small, with about 25 students per class in each of the four content areas and 12 to 15 students per class during speech and reading sessions. Homogeneous grouping, used for math and English classes, permitted additional emphasis on each student's specific language disabilities.

A special study hall was held during the last period of the day, three days a week. The HH 100 teaching staff was available during these study periods to give individualized assistance to students having difficulty in particular subjects. Teachers were also available after school or during preparation periods for additional tutoring or assistance. As much as possible, students were dealt with on an individual basis, with the teacher occupying a role best described as teacher-counselor. Close relationships were formed as teachers became "responsive helpers" in motivating students to adjust to the demands of school.

Team planning. In a series of formal and informal gatherings, the HH 100 team was encouraged to react, respond, and adjust to the needs of their individual pupils. The entire team, including the guidance counselor, met once a week during the last period of the day to discuss the progress of individual students. At these gatherings, teachers cooperatively planned their classroom activities and developed and coordinated techniques for dealing with each youngster's unique academic and social-adjustment problems. In addition to weekly planning meetings during the school year, the staff spent four weeks during the summer planning the year's instructional and cultural activities, training new HH 100 staff, studying profiles of incoming students, and meeting the students and their parents through home visits.

Intensive counseling. Home visitations made during the summer by the counselor and teachers sensitized the HH 100 staff to problems that might occur during the academic year. Parents were encouraged to come to the school whenever the need arose to discuss their child's problems. The guidance counselor provided a great deal of personal attention, assistance, and encouragement to each student. Because he had less than half the regular student load, the HH 100 counselor could become thoroughly acquainted with each youngster. He helped them with personal troubles as well as school-related difficulties, and was frequently a go-between in working out a student's academic and adjustment problems with his teachers and parents. The counselor worked intimately with each teacher and shared details relating to students' standardized test scores, prior school histories, home situations, and personal problems. He thereby assisted the teachers in working more effectively with their students. The counselor and teachers also worked as a team in changing individual schedules. For further details on how the HH 100 team individualized instruction and encouraged students to adjust to school demands, see Examples of Specific Methodology.

Cultural enrichment. A program of cultural activities, civic trips, and speakers was provided and evaluated as part of the instructional program. The various activities were pre-planned and coordinated during HH 100 staff meetings. The entire HH 100 staff and student body participated as a group in each event, and followed up their experiences with related class activities. Experiences provided over the years have included field trips of historical interest (e.g., Boston's Freedom Trail), civic interest (e.g., State Capitol and Supreme Court buildings), and cultural interest (e.g., films such as Othello and The Agony and the Ecstasy). Speakers have included State government officials and city officials who dealt with topics of special interest to the HH 100 student body (e.g., drug abuse). In addition, guest lecturers spoke to the students about art, drama, and so on. Depending upon available funds, supplementary current reading materials were purchased and some music (instrumental) instruction was offered.

Typical daily schedule. The student's school day consisted of homeroom period followed by six 45-minute periods which on any given day might follow this sequence:

Home Room	Conducted by first-period content-area teachers prior to initiating the day's instruction.
Period 1	English
Period 2	Mathematics
Period 3	Regional Studies (geography, civics, social studies)
Period 4	Science
Period 5	Speech and Reading (Speech and remedial reading classes were taught on alternate days.)
Period 6	Gym (twice a week) Supervised Study (three times a week)

The sequence of the subjects shown opposite Periods 1 through 5 rotated daily so that students attended a different class during Period 1 each day. This system was followed to insure that at least once a week students were "fresh" in each content area. No constraints were placed on students to adhere to schedules which were not working out well. In instances where there were schedule problems, the teachers and guidance counselor cooperated with the student in devising a satisfactory course of study.

The daily program schedule could vary without disrupting the main high school schedule, and periods could be extended and classes combined whenever activities warranted.

Physical layout. HH 100 used six classrooms situated in a corner of the second floor of Hartford Public High School. With the exception of the science facilities, the classrooms were adjacent. The physical separation of HH 100 facilities from those of the main high school helped set the school-within-a-school atmosphere. Equally important was the exclusive nature of HH 100 class enrollments. In fact, the twice-weekly gym period was the only time the program students competed with their ninth-grade peers.

Equipment and materials. All subject areas made extensive use of audiovisual aids, in addition to books and materials selected or prepared in accordance with students' interests and abilities. Due to space limitations only a sample of these devices and materials can be presented here.

Books

English:
- Modern English in Action, by H. Christ (grammar skills)
- English Grammar and Composition, by Warriner (grammar skills)
- Reading/Writing Workshop, by McCart (grammar skills)
- The Way It Is, Xerox publication (literature)
- The Odyssey of Homer, adapted by H. Christ (literature)
- The Pearl, by Steinbeck (literature)
- The Learning Tree, by G. Parks (literature)
- Lilies of the Field, by W. Barrett (literature)
- American Negro Poetry, edited by Bontemps (literature)
- Individual dictionaries (one per student)

The classroom library contained 300 paperbacks which students could borrow for use at homee.

Remedial Reading:
- Word Attack Manual, by Josephine Rudd (developmental)
- Building Reading Power, a programmed course in reading techniques (developmental)
- Basic Reading Skills, Scott Foresman (developmental)
- High-interest stories and plays such as those in Saroyan's My Kind of Wacky Wonderful World (enjoyment)

Audiovisual Equipment and Materials

English and Speech:	Tape Recorder Filmstrips Movies Television Phonograph records Overhead projector Opaque projector
Remedial Reading:	Controlled Reader and filmstrips which accompany the device (Educational Development Laboratories) Language Master and materials which accompany the equipment (Bell and Howell) Flash-X (a tachistoscopic device manufactured by Educational Development Laboratories)
Science:	Introductory Physical Science, produced by Prentice-Hall, is a textbook, materials, and equipment package which is used for the laboratory portion of the HH 100 science course.

Specific Examples of Methodology

Each of the teachers provided the American Institutes for Research with detailed descriptions of objectives, content, materials, and techniques used to individualize instruction and to foster self-esteem. Due to limited space only portions of the write-ups for three of the six classes have been summarized and are presented below. Whereas foregoing sections have stressed the efforts of the HH 100 team to implement an articulated approach to language remediation, the examples below point up the variety of individualized instructional techniques which were actually practiced within that overall plan.

English. A unique aspect of individualized instruction in English classes was the use of contracts in which each student chose the grade he wanted to make on a unit of instruction and agreed to fulfill a contract which specified the conditions for earning that grade. A, B, C, and D grades had the same minimum requirements -- positive class participation and adequate preparation of daily assignments. The higher grades were associated with contracts for correspondingly higher test scores and completion of more assignments. For example, a student contracting for a B grade on the Odyssey and Mythology unit was required to meet the minimum participation and assigned work requirements for B, C, and D grades. In addition, he agreed to maintain his test average during the unit at 80 and to complete four assignments which he selected from two teacher-prepared lists, two from each list. (By contrast, a student contracting for an A grade had to maintain a test average of 90 and to complete five assignments.) The following activities are typical of those a student might choose:

- Suppose that you are going to make a film of the Odyssey. With modern actors and actresses, cast the story. Justify your choice of characters orally to the class. Use only major characters in the story.
- Find the names of planets that relate to mythology. Write the mythological story of each.
- Write a theme describing the slaughter of the suitors, explaining its justification and consequences.
- Write a story of a personal adventure. Examples: an unpleasant occurrence, an accident, a boy's or girl's courage and quick wit, etc.

The student could raise a poor test average by completing bonus electives which were similar to contract assignments, but required a greater range of effort. Each bonus elective was worth from 5 to 20 points, depending upon the amount of work required of the student. Thus the contract system gave students many alternatives for earning desired grades in English. In addition, activities were of short duration and were based on attainable standards so that students could experience success.

Remedial reading. The remedial reading teacher, like the rest of the HH 100 staff, used diagnostic test results to pinpoint each student's specific language skills deficiencies and to start him where he could easily make gains. Early in the year, the teacher set short-term, readily attainable goals for each student; later, he occasionally challenged students to work at or above their "frustration levels" to determine whether individual reading goals could be upgraded. The teacher looked for ways to let each student demonstrate his progress. The youngster's strengths became the source of praise which could be recognized as warranted and sincere.

Other techniques the teacher used to reach each student are best illustrated in the context of classroom instruction. For example, during a lesson on reading rate and comprehension, special motivational and instructional techniques were used to promote improvement of attention, concentration, speed, vocabulary, thinking, and visual perception. The EDL Controlled Reader was used to present stories on filmstrips to the students. Before actually flashing the story, the teacher spent a great deal of time stimulating interest in the theme and in preparing students for new words used in the story. Vocabulary words were introduced in the context of writing, decoding, and speaking exercises in which students used the words in an original sentence, syllabicated the words, and discussed the words in terms of people in the class, e.g., "Marvin is renowned for his neatness." The teacher described himself as "going through contortions" during vocabulary study to keep the students motivated. Finally, just before flashing the story, students were reminded to "read aggresively." Interclass competitions and individually kept records were additional motivational devices.

Science. The student developed comprehension and reading skills by applying concepts from his science textbook and teacher-prepared materials to class and lab work. In addition, he was given the responsibility for selecting, directing, and completing his own work. Each student received a list of assignments for the marking period from which he selected his assignments. Each completed assignment was worth one point, and the number of points the student earned in a marking period determined his grade. The system permitted the teacher to provide individualized assistance while each youngster worked at his own pace on assignments which interested him. During any given class period, some students would be doing a lab experiment, others a workbook activity, still others a research project.

Budget

HH 100 is financed under provisions of the Connecticut State Act for Disadvantaged Children. The HH 100 budget reproduced below is based on estimates for the 1970-71 year.

Salaries	
Teachers (6)	$ 66,375
Guidance Counselor	14,080
Clerical (part-time)	4,590
Expenses	
Instructional supplies	1,200
Other operating expenses	500
Pupil Transportation	1,000
Fringe Benefits	6,380
Total	$ 94,125

The HH 100 evaluation officer estimated the 1969-70 per-pupil cost of the program at $900 and compared it to an $800 per-pupil cost for the regular high school program during the same year.

EVALUATION

Since its inception in 1965, the Higher Horizons 100 program has attempted to improve the (1) reading achievement, (2) writing skills, (3) general scholastic achievement, and (4) self-concept of its students. Cognitive goals have been evaluated with the same basic pretest-posttest evaluation model throughout the years. Self-concept evaluation has taken a variety of paths, none of which has produced definitive results. The following section summarizes the results of all evaluations to date. The reader requiring more detailed information is referred to the Higher Horizons 100 evaluation reports listed at the end of this description.

Ability Test Results

The Lorge-Thorndike Intelligence Test (Level 4, Form A, 1954 edition) was regularly administered to Higher Horizons 100 students prior to the start of the academic year. The same test was administered at the end of every academic year except 1968-69, when a different level and form was used for posttesting and 1969-70 when posttests were not administered. Pretest-posttest difference scores were analyzed to determine if the program had any effect on the students' ability test scores.

The assumption underlying these analyses was that disadvantaged students with reading disabilities tend to be penalized when tested with group intelligence instruments because of their language problems. It was therefore hypothesized that the intensive language instruction provided by the program would aid the students in overcoming their reading-related, test-performance difficulties and result in higher scores at the end of the program.

Throughout the years ability test results have been mixed, with small but statistically insignificant IQ gains reported in 1965-66 and 1967-68, small but statistically significant gains reported in 1966-67 ($p < .05$), and a statistically insignificant decrease in IQ reported for the 1968-69 academic year. Since ability test gains when present were small and in only one case statistically significant, it can be concluded that the Higher Horizons 100 program had little effect on its students' intelligence test performance.

Writing Skills Test Results

The SRA Writing Skills Test, Form A, 1961 edition, was administered to all Higher Horizons 100 students at the beginning and end of each academic year. This test was selected to measure the effect of the intensive language program on students' writing skills.

Table 1 summarizes the results reported to date. Higher Horizons 100 students have consistently demonstrated statistically significant gains in writing skills ($p < .01$, two tailed t test). In general, the improvement in writing skills has brought the program's students from a pretest percentile rank of approximately 22 to a posttest rank of approximately 50, the expected level for non-disadvantaged students. It can therefore be concluded that the gains in writing skills demonstrated by the Higher Horizon 100 students throughout the years have been educationally as well as statistically significant.

TABLE 1

SRA Writing Skills Pretest, Posttest, and
Gain Percentile Scores (Means)

Year	Sex	N	Pre	N	Post	Gain
65-66	Boys	36	21.4	36	43.7	22.3*
	Girls	37	25.4	37	53.3	27.9*
66-67	Boys	46	20.5	43	38.7	18.2*
	Girls	41	18.9	37	38.1	19.2*
67-68	Boys	41	21.5	33	47.1	25.6*
	Girls	45	23.3	45	62.7	39.5*
68-69	Boys	41	29.5	33	54.8	25.3*
	Girls	51	25.7	45	58.0	32.3*
69-70	Boys	21	22.7	21	48.3	25.6*
	Girls	31	21.4	31	52.8	31.4*

* $p < .01$, two tailed *t* test

Reading Achievement Results

Since the main thrust of the Higher Horizons program was focused on reading skill improvement, it was predicted that the program's students would demonstrate statistically and educationally significant gains in reading achievement. Alternate forms of the 1943 edition of the Iowa Silent Reading Test were administered during the 1965-66 academic year, and alternate forms of the Revised New Edition of that test were administered the remaining academic years. In general the students were administered one form in the fall, and the alternate form was administered the following spring.

Analysis of pre- to posttest differences indicated that the students consistently demonstrated statistically significant gains in reading achievement ($p < .05$, two tailed *t* tests). Table 2 illustrates the size of gains for the two academic years in which gains were reported in grade-equivalent units. The time between testing was nine months during 1965-66 and eight months during the 1969-70 academic year. On the basis of the norms for the test, a grade-equivalent gain of .8 was expected during 1965-66 and .9 during the 1969-70 academic year. Table 2 indicates that the observed gains exceeded those expected values and consequently can be considered educationally significant. On the basis of these data, it can be concluded that Higher Horizon 100 students have consistently demonstrated statistically significant gains in reading achievement. It can further be concluded that when these gains are expressed in grade-equivalent scores, they can also be considered educationally significant.

TABLE 2

Iowa Silent Reading Grade-Equivalent
Pretest, Posttest, and Gain Scores (Means)

Year	Sex	N	Pre	N	Post	Gain
65-66	Boys	46	7.0	44	8.5	1.5*
	Girls	48	7.5	46	8.9	1.4*
69-70	Boys	21	6.3	21	8.1	1.8*
	Girls	31	7.1	31	8.8	1.7*

* $p < .01$, two tailed _t_ test

General Scholastic Achievement Results

The general scholastic achievement of the program's students was tested via a battery of Metropolitan Achievement Tests (1947 edition, Forms AMF and AMS) during the 1965-66 academic year. For the remaining years, academic achievement was measured by selected tests from the 1960 edition of the Metropolitan Achievement Tests, with the Word Knowledge and Reading Tests consistently administered through the years. In all cases one form of the test was administered at the beginning of the program and an alternate form at the end of the school year.

The most extensive battery of tests was administered during the first year of the program. The tests administered were the Word Knowledge (WK), Reading (Read), Spelling (Spell), Language (Lang), Language Study Skills (LSS), Arithmetic Computation (AC), Arithmetic Problem Solving (APS), Social Studies Information (SSI), and Science (Sci) tests of the Metropolitan battery. Since eight months elapsed between the two administrations, a grade-equivalent gain greater than .8 can be considered educationally significant.

The grade-equivalent gains made by the boys and girls in the program on each test administered are summarized in Table 3. The boys made statistically and educationally significant gains on the Reading, Social Studies Information, and Science tests of the battery and statistically but not educationally significant gains on the Spelling, Language, and Arithmetic Problem Solving tests. On the other hand, the girls made statistically and educationally significant gains on only the Language Study Skills test with statistically but not educationally significant gains on the Word Knowledge, Reading, and Social Studies Information tests.

TABLE 3

1965-66 Grade-Equivalent Gains for Boys and Girls on the Metropolitan Achievement Tests (Means)

Sex	Metropolitan Achievement Tests								
	WK	Read	Spell	Lang	LSS	AC	APS	SSI	Sci
Boys	.8	3.3*	.7*	.8*	.9	.4	.7*	.9*	1.0*
Girls	.8*	.8*	.6	.3	.9*	.5	.5	.7*	.6

* $p < .05$, two tailed t test

The only tests administered during the remaining years other than the Word Knowledge and Reading tests were the Arithmetic Computation and Arithmetic Problem Solving tests. Arithmetic test results have not been too encouraging, with the only statistically and educationally significant gain made during 1968-69 by the girls on Arithmetic Problem Solving ($p < .05$, one tailed t test). The Word Knowledge and Reading test results, however, provide quite a different picture.

Mean Reading and Word Knowledge pretest, posttest, and difference scores in grade-equivalent units for each year of program operation are summarized in Table 4. Reading gain scores throughout the years have been in all cases statistically, and in most cases educationally, significant (i.e., gains are greater than the expected .8). These results support those obtained with the Iowa Silent Reading Test. In terms of the Word Knowledge test results, four of the eight gains reported are statistically significant, and three of those gains are also educationally significant.

TABLE 4

Metropolitan Word Knowledge and Reading Grade-Equivalent Pretest, Posttest, and Gain Scores (Means)

Year	Sex	Word Knowledge			Reading		
		Pre	Post	Gain	Pre	Post	Gain
65-66	Boys	6.6	7.4	.8	6.6	9.9	3.3*
	Girls	6.9	7.7	.8*	6.6	7.4	.8*
66-67	Boys	5.9	7.9	2.0*	5.6	7.7	2.1*
	Girls	6.2	6.7	.4	5.6	7.7	2.1*
67-68	Boys	6.1	8.1	2.0*	5.9	6.7	.8*
	Girls	6.2	8.2	2.0*	5.7	7.0	1.3*
68-69	Boys	6.7	7.2	.5	6.0	7.3	1.3*
	Girls	6.6	6.9	.3	5.8	6.9	1.1*

* $p < .05$, two tailed _t_ tests

In terms of scholastic achievement, the program has consistently reported significant gains on the Reading test, less consistent gains on the Word Knowledge test, and few educationally and statistically significant gains reported on other tests of the Metropolitan battery. It appears that Higher Horizons 100 has achieved its goals in the areas of reading skills (as measured by the Metropolitan Reading Test and the Iowa Silent Reading Test) and writing skills (as measured by the SRA Writing Skills Test) achievement. The program, however, has not demonstrated substantial success in other areas of scholastic achievement.

Self-Concept Results

Several attempts have been made to determine if the Higher Horizons 100 program has significantly improved student self-concept. A variety of evaluation models and instruments have been tried since the program's inception. Most attempts have been plagued by data collection or analysis problems. To date, little evidence has been reported to support the contention that the program has an effect on student self-concept.

Summary

The Higher Horizons 100 program has been evaluated every year since its inception in 1965. The results of these evaluations provide conclusive proof that the program is effective in improving the reading and writing skills of its students. Results in regard to other areas of scholastic achievement have been less impressive and consistent. In most areas of achievement tested, the students have made gains, but few of these gains are statistically and/or educationally significant. It appears that the intensive language instruction component of the program is successful, but only limited success is evident in other achievement areas.

MODIFICATIONS AND SUGGESTIONS

The program is continuing in substantially the same form during 1970-71. In addition to the Hartford Public High School program site, HH 100 is being extended to two other Hartford high schools.

SOURCES FOR FURTHER INFORMATION

Personnel

For additional information on Higher Horizons 100 program methodology, contact either of the following individuals:

Mrs. Mamie White, Program Coordinator
Mr. John DeBenedetto, HH 100 Counselor
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55 Forest Street
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(203) 278-1365, ext. 213, 208, respectively

For evaluation information, contact:

Mr. Robert J. Nearine
Coordinator of Evaluation
Hartford Public Schools
249 High Street
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(203) 566-6534

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THE LAFAYETTE BILINGUAL CENTER

CHICAGO, ILLINOIS

PROGRAM OVERVIEW

The Lafayette Bilingual Center offered intermediate-grade English and Spanish instruction to Spanish-speaking children from an economically disadvantaged neighborhood in one of Chicago's largest school districts. The Center was started to meet the critical academic-social needs of intermediate-grade children, newly arrived from Spanish-speaking countries, who had no hope of keeping up with their Anglo peers when taught in conventional sixth-, seventh-, and eighth-grade classrooms.

The Center's stated objectives were to develop Spanish-speaking children's English listening, speaking, reading, and writing skills while strengthening literacy in their native language; to improve their academic achievement in science, math, and social studies; to impart an awareness and pride in their cultural heritage; and to integrate this heritage with that of the United States mainland. Fifteen Anglo children (non-Spanish-speaking, including blacks) who voluntarily attended the Center, were instructed in their regular sixth through eighth grade curriculum, were taught Spanish, and acted as English-speaking models for the Spanish children. Interaction between the two groups was encouraged through special bilingual conversation classes, integrated math, science, and social studies classes, and frequent bicultural social events.

The Center's program was fully implemented during 1969-70 with a staff of six bilingual classroom teachers. Spanish-speaking children were initially taught academic subjects in Spanish; then slowly, the teachers helped them make the transition to English. About half of each day was spent in intensive English instruction, the other half was devoted to the regular upper-elementary curriculum: math, social studies, and science. This basic schedule was adjusted once a week to provide for music and art instruction, health education, sewing lessons (girls), and physical education. Anglo children followed the same schedule, but substituted regular language arts instruction and Spanish classes for the intensive English (second language) classes attended by the Spanish children.

The children were grouped by English proficiency levels in ungraded classes. All children were required to meet a standard set of objectives, with individual needs met through difficulty-level adjustments, specially developed practice materials, and other resource aids. A small teacher-pupil ratio of approximately 1:16 facilitated individual and small-group instruction. Particular emphasis was placed on diagnosing and meeting learning problems of each child. Frequent subject-matter tests, developed by the Center staff for all content areas, were routinely used for this purpose.

Spanish editions of the Short Test of Educational Ability and the Test of General Ability were administered at the beginning and end of the 1969-70 school year. In both cases, results of the nonparametric "sign test" indicated that there was a statistically significant increase in the IQ of the students tested. Achievement gains in language and math skills over the same eight-month period were measured by various subtests of the Metropolitan Achievement Tests (MAT). Statistically and educationally significant gains in English reading, spelling, language, and arithmetic problem solving were noted on the elementary level MAT (taken in English). Statistically and educationally significant gains in reading and arithmetic problem solving were also observed on local Spanish translations of three intermediate level MAT subtests.

PROGRAM DESCRIPTION

Context and Objectives

The Lafayette Bilingual Center is located in a high-density, economically disadvantaged, Spanish-speaking community of predominantly Puerto Rican families. Unemployment is slightly higher in the community than in the nation, with most of the employed parents holding unskilled or semiskilled jobs. Nearly half of the district's enrollment receives free lunches.

The Center is located in Chicago's District 6 which serves 30,000 children in its 25 elementary schools (grades K-8) and 2 high schools, accounting for almost half of Chicago's school enrollment. Approximately 75 percent of the students in the District speak Spanish, and many have just arrived from Spanish-speaking countries. Although the absolute enrollment level remains fairly constant, considerable within-District transfer results in somewhat unstable enrollments in the individual schools.

Past experience indicated that school achievement of Spanish-speaking children was very low and that academic-social handicaps prevented them from benefiting fully from the regular school experience. In addition, their high school (and even elementary) dropout rate was alarmingly high. The District pressed for a special program which would help these youngsters catch up academically, motivate them to continue their education, and nurture pride in their Spanish heritage. The long-range expectation was that students who completed such a bilingual program would enter District 6 high schools with the academic skills, motivation, and self-confidence necessary to successfully complete the regular high school program. It was therefore decided to develop a special program for Spanish-speaking children who met the following criteria: 11-14 years of age, recent arrival to the United States mainland, apparently normal IQ, and no severe behavioral problems.

Housed within a District 6 elementary school, the Lafayette Bilingual Center operated as a "school-within-a-school." In addition to its predominantly Spanish-speaking student population, the Center had a small group of Anglos who volunteered to study Spanish and continue their academic studies at the Center. During the 1969-70 school year (the second year of the program), the Center served 80 pupils (65 Spanish- and 15 English-speaking children), and was financed by funds from Title I, Title VII, and the local board of education.

The Center staff, guided by an eclectic, bilingual-education philosophy, developed a set of linguistically sequenced instructional objectives, materials, and methodologies for a sixth- through eighth-grade curriculum in which Spanish-speaking children were provided with intensive English instruction and were taught academic subjects in Spanish and English. The program was also designed to strengthen Spanish literacy, teach English, enhance self-image, and increase appreciation of Spanish history and culture.

Personnel

The full-time staff of the Lafayette Bilingual Center in 1969-70 included the following:

Project Director. The director of the Chicago Public Schools (ESEA Title VII) Bilingual Education Program assumed general supervisory responsibility for five bilingual centers, of which the Lafayette Center was one.

Lafayette Center Director. The director was the principal of another elementary school in the district. She and the staff developed the objectives for the program during the summer of 1969. She also assumed the general supervisory duties of the center.

Head Teacher. The major responsibility of the head teacher was to coordinate and supervise the Lafayette Bilingual Center program. In addition to overseeing the instructional program for students, she conducted the teachers' inservice training. The head teacher held a Bachelor's degree and was a Master's degree candidate at the TESL Institute of the University of Illinois, an institute for post-graduate study in "Teaching English as a Second Language." In addition to ten years of teaching experience, the head teacher had been an exchange teacher in Puerto Rico for one year where she taught English to Spanish-speaking students and trained teachers.

Anglo-Bilingual Teachers (3). One teacher held a Master's degree in Teaching English as a Second Language (TESL) and had two years experience in TESL. The second teacher held a Bachelor's degree, studied for six years in Spain and had taught ESL for five years. The third teacher had a Bachelor's degree and had spent two years in the Peace Corps Development Work in Colombia and had four years of experience in teaching ESL. The Anglo-bilingual teachers taught three periods of English daily to the Spanish children at the Center.

Spanish-Bilingual Teachers (3). Two of these teachers held Bachelor's degrees, while the third had earned a Master's degree and was a Doctoral candidate. Two of the teachers had from five to ten years of teaching experience; one teacher had also taught about five years in South America. The third teacher had taught for one year and had been involved in community work in predominantly Puerto Rican neighborhoods. One of the experienced teachers (the Doctoral candidate) had also taught for three years in a local university. The three Spanish-bilingual teachers taught social studies, science, mathematics, and Spanish reading and writing to each child at the Center.

Resource Teacher. The Bilingual-Spanish Resource Teacher had a number of responsibilities: conducting English and Spanish literacy classes for parents of Center children; tutoring children in English; conducting special testing of the Center's children; carrying out follow-up of Center graduates; and assisting the school-community representative in connection with parent-community contacts. The resource teacher held a Bachelor's degree and had four years of teaching experience in addition to her two years' experience with the Papal Volunteers community development work.

Bilingual Teacher Aides. Both aides held high school diplomas and had some experience as aides in Head Start programs. Both had received special inservice training for the Center program. Aides did not play an instructional role, but instead assisted the six teachers by preparing bulletin boards, correcting papers, keeping records, and assisting in supervision of children in the hallways.

School-Community Representative. Having past experience which included a high school education, community and school work, presidency of a school-community council, and special inservice training for her role with the Lafayette Bilingual Center, the school-community representative visited parents and helped them solve problems regarding their children's school work and special health needs. She also encouraged parents to come to school for meetings, programs, English and Spanish classes, and in general served as liaison between the school and the home.

Clerk. A bilingual clerk performed secretarial work for the Center. Her duties included typing, ordering books and supplies, record-keeping, and distributing carfare to the children. The clerk received special inservice training in connection with her work for the Center.

In addition to the above full-time personnel, the Center was served part-time by a music supervisor and an artist-in-residence who was a professional musician. Both musicians gave instruction to the children for two or three hours weekly in the playing of steel drums, percussion instruments, and guitars.

Methodology

The major goal of the Lafayette Bilingual Center was to improve the student's literacy in both Spanish and English, his self-image, and his appreciation of Spanish (and American) culture. This broad goal was common to each content area: TESL, Spanish Reading and Writing, Math, Social Studies, and Science. The five content areas and their specific objectives are discussed separately below.

In addition to sharing the Center's broad cognitive and affective goals, the various content areas had certain organizational and procedural characteristics in common. First, classes were ungraded with students grouped according to knowledge of English instead of by age. For report-card purposes, however, children were nominally assigned to grade six, seven, or eight. Second, Spanish-speaking students were initially taught in their native tongue in each content area, gradually making the transition to English at some point after their first year at the Center. Third, instruction proceeded from the simple to the more complex, as Spanish-speaking students gradually increased their proficiency in oral and written English communication and accumulated a background of fundamental concepts and principles in each of the core subjects. Finally, extensive use was made of diagnostic tests to identify special learning problems. Subject-matter tests developed by Center teachers were used weekly, and often before and after the semester's instruction, to measure the extent to which objectives had been attained. Results of the diagnostic and criterion-reference tests guided the teacher in proper placement of the student at an appropriate level of instruction and in tailoring activities to the needs of each individual. A small teacher-pupil ratio, usually about 1:16, facilitated the application of various individualized instructional techniques.

TESL (Teaching English as a Second Language). Spanish-speaking students attended three 40-minute periods of intensive English instruction every morning, four days a week. One day a week, the three periods normally scheduled for TESL were devoted instead to music, art, and special tutoring in math, civics, and English. Objectives relating to the demonstration of listening, speaking, reading, and writing skills were divided into three levels of language development: Basic (Level I); Intermediate (Level II); and Advanced (Level III). Theoretically, a student would complete one level per year during his three years at the Center. Listening and speaking skills were stressed on Level I, with only one-fifth of classroom time spent on reading and writing. At Level II classroom time was divided equally between audio-lingual and visual-graphic skills. At Level III reading and writing skills were stressed, with about one-third of classroom time spent on listening and speaking skills. As the labels for each of the three levels of language development suggest, the material at each level was progressively more difficult. Similarly, within each level more advanced skills were developed after simpler skills had been taught. Every lesson involved review of previously learned pronunciation, intonation, stress, structures, and vocabulary in connection with the introduction of new skills.

Basic vocabularies were developed for various topics which were common at all three levels. As the topic recurred at each level, the appropriate "topic vocabulary" was introduced. For example, the Basic vocabulary for the Weather topic might be "warm, hot, cold, cool." The

Intermediate vocabulary for the same topic might be comprised of "humid, sticky, chilly, windy." The Advanced vocabulary for the Weather topic might consist of "foggy, cloudy, dreary, clear." The subtle differences in difficulty from one level to the next are apparent if one thinks about the underlying concepts for each vocabulary level in the example. The vocabulary was introduced in grammatical structures which the students already knew. ("It is cool.") New grammatical structures were taught with known vocabulary. ("It's cool; Maria could not keep cool today; Is it cool today? No, it isn't.")

The main TESL materials and techniques used to produce oral facility in English were (1) specially developed "dialogs," (2) patterned practices, (3) structure drills, (4) directed conversation, (5) substitution drills, (6) role-playing and dramatics, (7) special language games, and (8) use of commercially available materials including flash cards, filmstrips, Peabody Language Development Kits, and a Language Master. A sample dialog for the Basic Level students is presented under the heading, Specific Example of Methodology. Examples of structured drills and directed conversation are also given.

In addition to the specially developed TESL materials, a variety of textbooks, geared to the needs and capabilities of students at the Basic, Intermediate, and Advanced TESL levels were used. Chapters in each book were linguistically sequenced as well, with simpler language patterns preceding the more complex grammatical structures and vocabularies. Textual materials (in addition to the Center-developed "dialogs") were used for oral drills as well as for the development of reading skills. Textbooks written in English included those which would be read by students in the various Level II or III content areas of social studies, math, and science. (Level I was the only Level with all content subjects taught in Spanish, regardless of a student's entering English proficiency level.)

A classroom library composed of books written at various English difficulty levels was provided for students to check out and read at their leisure. Periodically, newspapers and magazines were distributed to the students to keep. No assignments or reports were required of the students in this independent phase of the reading program.

The weekly "bilingual class." Once a week a period was set aside for a "bilingual class" made up of the Anglo children and an equal number of Spanish-speaking children. Two teachers conducted the class. The Spanish teacher coordinated and directed the first 15 minutes of the period, at which time the children conversed in Spanish. The Spanish children served as models in pronunciation, intonation, and accent for the Spanish speech patterns that the Anglo children practiced. The next 15 minutes was directed by the TESL teacher. During that period English was spoken and the Anglos "modeled" for the Spanish children. The last 10 minutes was spent in controlled conversation between Spanish and Anglo children speaking both languages in small, mixed groups. The topics which formed the basis for these conversations were patterns practiced in previous lessons. Whenever possible, conversations dealt with the awareness and appreciation of Anglo and Spanish cultural differences. English and Spanish songs were often used to "break the ice" during the conversation period. The children gradually learned to converse with each other in both Spanish and English without fear or embarrassment. As they progressed in language proficiency, the time allotted for this final activity was increased and the teacher assumed a less important role. Spanish students monitored the Spanish conversation of their Anglo peers, while the Anglo children acted in turn as "informants" when Spanish children were conversing in English. To promote enjoyment of cultural differences, socials were held where music and food typical of both South and North America were introduced.

Science. Science objectives required students to meet specified mastery levels for various product objectives, including the following: discovery, description, and explanation of specified cause-and-effect relationships; formulation and execution of appropriate processes for solving given application problems; conduct of scientific experiments: answering of questions designed to test knowledge of contributions of identified scientists, relationships between given scientific discoveries and enumerated political and social events; demonstration of reading comprehension based on randomly selected passages from a fifth-grade science textbook.

During the 1969-70 year, no totally adequate science textbooks were found for use with the Spanish-speaking students. The teacher therefore relied heavily on supplementary materials and tests he developed himself. These materials were based upon behaviorally stated science objectives such as those listed above. The objectives, which followed in general the district curriculum guide for grades six through eight science instruction, were the same for students of all English proficiency levels, but the means for attaining a given objective varied according to the student's special needs and capabilities. For example, students at Basic, Intermediate, and Advanced English proficiency levels studied the same concepts, but used different source materials especially selected to correspond to their level of language development. As much as possible, TESL techniques and abundant, specially developed visuals were used in teaching science concepts and skills. For example, before explaining scientific concepts or conducting laboratory experiments, the basic scientific vocabulary involved was first introduced and explained in Spanish. Once the vocabulary was mastered (this might take the full 40-minute period), concepts were introduced through simple problems and experiments. Explanations were made in English using the known scientific vocabulary and familiar grammatical structures. Tests were given in Spanish as well as English. Visuals accompanied problem-solving exercises to enable Basic level students to arrive at a solution as readily as students at Intermediate or Advanced English proficiency levels.

Math. Mathematics objectives corresponded fairly closely to objectives outlined in the regular curriculum guide for mathematics instruction in grades six through eight. These objectives included attainment of elementary computational and problem-solving skills, as well as acquisition of basic mathematics vocabulary and concepts. As an introduction to future work in mathematics which the students might encounter both in and out of school, they were exposed to techniques of factoring; solving equations; finding areas; measuring in standard units with rulers, protractors, and compasses; structures and symbols of basic numeration systems; and concepts related to points, lines, line segments, rays, planes, and circles.

Resource materials included Spanish and English mathematics textbooks along with special materials and subject-matter tests developed by the teacher. As in the other core courses, frequent testing made it possible to identify students who needed special help. Instruction was individualized in a variety of ways, including tutoring by fellow classmates, individual and small-group activities, and provision for extra time when the teacher could give special attention to an individual student's particular learning problem. Using the TESL approach, learning of minimal, basic mathematics vocabulary preceded each lesson, with subsequent lessons devoting some time to review and reinforcement of prior learnings. Similarly, throughout the carefully sequenced series of math lessons, exercises and supplementary materials moved from simple to more complex concepts and operations. As in the other content areas, learners were systematically guided to increasing independence from their teacher. Every effort was made to insure that each student would succeed in attaining lesson objectives and to make sure his success was evident to him. English explanations were provided in as many varied ways as possible, often acting out, drawing, using pictures, and encouraging students to reach their own conclusions and present to the class their own "invented" explanation of how they understood the math problem. An effort was made to provide the student with a classroom atmosphere in which he could feel relaxed, confident, and curious.

Social Studies. Objectives focused on enhancing the student's pride in his native culture and in developing an acceptance of his new culture. Simple, basic concepts and processes were stressed, rather than complex and subtle ideas. Elementary concepts were developed in conjunction with material on the history and geography of South America, Puerto Rico, Mexico, and North America. Map reading was also emphasized. Again, as in the other content areas, basic vocabulary was introduced so that students could answer "pivotal questions" in English. The pivotal questions, used to add structure to each lesson, focused on issues which children at various English proficiency levels could readily grasp and verbalize in familiar grammatical structures. For example, pivotal questions during map study might inquire about the meanings of the map's colors and symbols. Students would then explain by means of their newly learned basic vocabulary that colors and symbols indicated mountains, valleys, bodies of water, etc. Further discussion might elicit from students the concepts that "people, animals, fish, birds, flowers, air, and sunshine are there." Individualization of instruction was accomplished through a variety of activities and creative projects which could be adapted to the student's developmental level, with advanced assignments supplementing the regular classroom activities for the more able students. In addition to the various resource books, teacher-prepared summaries of main concepts were distributed to the children.

Daily schedule. The school day began at 9:00 am and ended at 3:00 pm with 30 minutes for lunch. The Spanish children spent half of their school day (three periods) in TESL classes and the balance of the day in math, science, social studies, and Spanish reading and writing classes. The Anglo children attended the same math, science, and social studies classes, spending the balance of their day in language arts classes (two periods) and Spanish classes (two periods). Once a week all children received music and art instruction, physical education, health instruction, and sewing lessons (girls).

Physical plant. As indicated earlier, the six classrooms used by the Lafayette Bilingual Center were located within a very old elementary school in District 6. No special remodeling or improvement in classroom facilities was made for the program.

Materials and equipment. Due to limitations of space, only a sample of the textual and audiovisual materials and equipment used at the Center is given here. More complete details may be obtained from Center staff.

TESL Textbooks:

- Basic Level

  English This Way (MacMillan) - audio-lingual focus
  English for Today (McGraw-Hill) - audio-lingual focus
  Reading Round Table (American) - reading focus
  Bank Street Readers (MacMillan) - reading focus

- Intermediate Level

  More advanced books in the English This Way and English for Today series - audio-lingual focus
  More advanced books in the Reading Round Table series - reading focus
  Miami Linguistic Readers (Heath & Co.) - reading focus
  Readers Digest Skill Builders - reading focus
  Let's Learn English Crosswords (American) - writing focus
  Ananse Tales (Columbia Teachers College Press) - writing focus
  Specific Skill Series (Barnell Loft) - specific skill focus

- Advanced Level

  Most advanced book in the English This Way series - audio-lingual focus
  More advanced books in the Reading Round Table and Readers Digest Skill Builders series - reading focus

Guided Composition (American Language Institute) - writing focus
Specific Skill Series (Barnell Loft) - specific skills focus

TESL Audiovisual Materials and Devices:

Peabody Language Development Kit
Language Masters
Tape Recorder
Radio
Television
Flash Cards
Overhead Projectors
Filmstrip Projector
Record Player
Pictures
Filmstrips
Phonograph Records

Spanish Textbooks Used in Some Content Areas:

Matemática 3 (Laidlaw)
Matemática 4 (Laidlaw)
Matemática 5 (Laidlaw)
Matemática 6 (Laidlaw)
Una Mirada al Pasado (Laidlaw)
Aventuras Por Mundos Vesconocidas (Laidlaw)
Nuestro Mundo Maravilloso (Laidlaw)
América de Todos (Rand-McNally)
Protección de la Salud (Laidlaw)
Por Esos Caminos (Laidlaw)
Comedias Interpretadas (National Textbook)

Inservice training. In addition to guidance provided in the District 6 Handbook for newly assigned elementary school teachers, special inservice training sessions for Center teachers were held from 8:30-9:30 am, twice a month. Major activities during these hourly sessions were preparation of behavioral objectives, presentations by subject-matter consultants, orientation to the Center's unique program and methodology, and discussion of testing results.

Parent and community involvement. Home visitations were made by the school-community representative and the Spanish resource teacher throughout the year. In this way they became acquainted with the child and his family. They helped the family wherever possible regarding problems the child might be experiencing at school. Very often, previously undetected or untreated health problems were brought to the parents' attention and arrangements were made by the Center to provide the necessary medical or dental care. As a result of home contacts, parent opinion about the role of the Center was obtained. In response to parent requests, a class in English was organized at the Center for adults. The neighborhood library loaned books to the Center library for use by the children. The Center's advisory council, made up of parents and members of the community, met to discuss and recommend ways in which the Center could improve its operations.

Specific Example of Methodology

Dialogs were developed by Center staff for the Basic, Intermediate, and Advanced English proficiency levels. Each dialog sheet is divided into sections which can be classified as (1) introduction of the grammatical patterns to be taught, (2) structure drills, and (3) directed conversation. Examples of these three kinds of activities are given below, based on excerpts from an actual dialog sheet for the Basic level student.

1. Introduction of grammatical patterns to be taught.

Interrogative Forms: Who, What, Where, How, When
Present Progressive: -ing

Illustrative dialog: Margarita: Hi Rafael. Where are you going?
Rafael: I'm going to the ball park.
Margarita: What are you going to do?
etc.

2. Structure drills. Structure drills include several repetition drills and substitution drills. In a repetition drill, the student repeats after the teacher, copying his intonation, pronunciation, and accent. In a substitution drill, the student completes sentences by supplying correct grammatical structures and by using learned vocabulary.

Example of a repetition drill:

I am playing in the park.
You are playing in the park.
He is playing in the park.
She is playing in the park.
etc.

Example of a simple substitution drill:

Mary is watching the game.
You are ...
I am ...
We are ...
etc.

Example of a multiple substitution drill:

I am playing in the park.	
... in the school yard.	(Class: "You are playing ...")
He ...	(Class: "... is playing in the school yard.")
They ...	(Class: "... are playing in the school yard.")

3. Directed conversation. Following is an example of a conversation between two members of the class who are directed by the teacher.

Teacher directs: "Rafael, ask Margarita where she is going."
Rafael responds: "Margarita, where are you going?"

Teacher directs: "Margarita, tell him you are going to the park with your brother."
Margarita responds: "I am going to the park with my brother."

Budget

Based on an estimated enrollment of 100 students, the 1969-70 budget for the Lafayette Bilingual Center was allocated as follows:[1]

Salaries	
Professional Staff 7 teachers (1 resource and 6 classroom) 1 head teacher	$ 89,500
Nonprofessional Staff 2 teacher aides 1 school-community representative 1 clerk	21,900
Total Salaries	111,400
Books, Materials, and Supplies	
Books (including library)	2,132
Instructional materials and supplies, such as records, tapes, charts, etc.	788
Total Books, Materials, and Supplies	2,920
Pupil Transportation (100 days @ 50¢ per day)	2,250
Total Program Budget	$116,570

The actual program enrollment during the 1969-70 year was 80, yielding a per-pupil cost of approximately $1457. About 95 percent of this cost was for salaries. Program funds were supplied by three sources in the following proportions: ESEA Title VII, 46 percent; ESEA Title I, 38 percent; Board of Education for the Chicago Public Schools, 16 percent.

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[1] The above budget does not include costs of inservice curriculum writing or fringe benefits for professional and nonprofessional staff; these were partially defrayed by Title VII funds.

EVALUATION

The first formal evaluation of the Lafayette Bilingual Center's program was conducted during the 1969-70 academic year (Brauer, 1970). The primary objective of the evaluation was to determine the effect of the Center on student aptitude, achievement, and level of anxiety. Pretests were administered at the beginning of the academic year and posttest data were collected eight months later. The entire Spanish-speaking student body of the Center was administered all tests; however, due to attendance problems at the testing session, complete pre- and posttest data were collected on slightly fewer than the 65 Spanish-speaking students enrolled in the Center.[2]

Evaluation plans called for a comparison of the Center's test results to those of a comparable control group not attending the Center. However, space was found in the Center for almost the entire population of students from which the comparison group was to be formed. Consequently, the data presented here are for program students only, with comparison made to norms, where appropriate.

Aptitude

Phase 1 of the evaluation was concerned with the effect of the program on the students' aptitude. Aptitude test scores tend to remain constant over repeated testings since gains in "achievement" on these tests tend to increase at the same rate as the testee's maturation. Theoretically then, any reliably measured, statistically significant gain in ability-test score can be considered to be educationally significant.

It was hypothesized that the bilingual program would enrich the experiential background of the students to the degree that their IQ scores would be higher on the posttest than the pretest. Spanish editions of two abilities tests, published by Science Research Associates, the Short Test of Educational Ability (STEA) and the Test of General Ability (TOGA), were administered to the students at the beginning and at the end of the academic year. Complete pre- and posttest data were available on 56 students for the TOGA and 60 students for the STEA. The nonparametric "sign test"[3] was used to test the significance of the differences between the pre- and posttest scores for both TOGA and STEA. In both cases, the results of the sign test indicated that there was a statistically significant increase in the IQ of the students tested ($p < .01$, one tailed). The

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[2] In all cases the same form of test was used for pretest and posttest. Alternate forms were not available for any of the tests except the Metropolitan Achievement Tests and they were not used. Some caution is therefore suggested in interpretation of these results.

[3] Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill, 1956.

TOGA pretest median IQ was 82.0 and the posttest median was 90.0, for a median IQ gain of 8 IQ points. STEA scores were reported in median stanines, with a pretest median score of 3.75 and posttest stanine of 5.29. These stanines correspond to a median pretest percentile rank of approximately 20 and a median posttest percentile of approximately 47.

It was concluded that the Center's program resulted in a statistically and educationally significant gain in the participants' aptitude as measured by the Spanish editions of the TOGA and STEA.

Achievement

The second phase of the evaluation focused on the measurement of achievement gains in the ability to (1) recognize printed English words, (2) discriminate between printed English words, (3) read and comprehend paragraphs in English, (4) spell English words, (5) use correct written English forms, and (6) solve arithmetic problems and understand arithmetic concepts expressed in English. The Word Knowledge, Word Discrimination, Reading, Spelling, Language, Arithmetic Problem Solving and Concept tests of the Elementary Battery of the Metropolitan Achievement Tests were administered at the start of the year and eight months thereafter to evaluate the gains corresponding to each of the above skills. Table 1 summarizes the results in terms of mean grade-equivalent pretest, posttest, gain, and standard deviation of gain scores.

TABLE 1

Summary of Grade-Equivalent Status on the Metropolitan Achievement Tests, Elementary Battery (N=61)

Test	Pretest	Posttest	Gain	Gain Std. Dev.
Word Knowledge	2.85	3.55	.70	.75
Word Discrimination	2.77	3.35	.58	.50
Reading	2.94	3.96	1.02	.84
Spelling	3.02	4.07	1.05	.60
Language	1.98	3.36	1.38	1.10
Arithmetic Problem Solving & Concepts	3.79	4.63	.84	.84

The statistical significance of the gains for each test were evaluated by t tests for repeated measures on the same sample.[4] All of the test grade-equivalent gains were found to be statistically significant ($p < .01$, one tailed). In terms of educational significance, the expected gain for the "average" student during the eight months between testing was .8 grade-equivalent units. On the basis of the expected norm, Table 1 illustrates the fact that the Center's students made educationally and statistically significant gains in the ability to read and comprehend paragraphs in English, spell English words, use correct written English forms, solve arithmetic problems, and understand arithmetic concepts expressed in English. It was concluded that the Center attained its goals in the areas of reading, spelling, language, and arithmetic problem solving and concepts. The gains in the Word Knowledge and Word Discrimination tests were statistically but not educationally significant.

The Arithmetic Computation test, Intermediate Level, of the Metropolitan Achievement Test was also administered to the same students on a pre- and posttest basis. Since the test was at the intermediate level and the students were just learning English, some additional instructions in Spanish were provided. Also, as expected, the gains were not as dramatic as those for the elementary level tests. In terms of grade-equivalents, the mean pretest score was 5.07, the posttest mean was 5.67, and their difference was .60. A t test found this gain to be statistically significant ($p < .01$, one tailed). The expected gain for an average student during the eight months between testing was .80 grade-equivalent units. It was concluded, on the basis of the evaluation, that the students made a statistically but not educationally significant gain in arithmetic computation.

Also administered on the same pre- and posttest schedule was a local Spanish translation of the Intermediate Level of the Metropolitan Achievement Word Knowledge, Reading, and Arithmetic Problem Solving tests. The norms for the English standardized version of the tests were used to arrive at grade-equivalents, since the translation was not restandardized.

Table 2 illustrates the mean pretest, posttest, gain, and standard deviation of the gain scores for the three tests. Mean gains on the three tests were found to be statistically significant on the basis of t tests for repeated measures ($p < .01$, one tailed). The mean gain in Reading and Arithmetic Problem Solving, but not in Word Knowledge, was found to be greater than the expected norm of .8, and therefore was considered to be educationally significant.

On the basis of a comparison of Tables 1 and 2, several points can be made in regard to students' achievement in the Center. In terms of Word Knowledge, Reading, and Arithmetic Problem Solving, mean gains were essentially similar regardless of whether the students were tested on an

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[4] All t tests reported here were run by the AIR staff and were based upon the data in the 1969-70 evaluation report.

TABLE 2

Summary of Grade-Equivalent Status on the Local Translation of the Metropolitan Achievement Tests, Intermediate Level (N=61)

Test	Pretest	Posttest	Gain	Gain Std. Dev.
Word Knowledge	5.46	5.99	.53	.75
Reading	4.38	5.28	.90	1.07
Arithmetic Problem Solving	5.18	6.04	.86	.93

elementary level achievement test in English (Table 1) or on a secondary level test in Spanish (Table 2). In both instances students had statistically and educationally significant mean gains in both Reading and Arithmetic Problem Solving. Their mean gains in Word Knowledge, though statistically significant, failed to reach educational significance on both the English and Spanish Tests. Comparison of their posttest scores in English (Table 1) and Spanish (Table 2) on the tests common to both test administrations indicates that at the end of the academic year the students were 2.44 mean grade-equivalent units higher in Spanish word knowledge than in English word knowledge, 1.32 units higher in Spanish reading than in English reading, and 1.41 grade-equivalent units higher in Spanish arithmetic problem solving than in English problem solving. On the basis of these findings it can be concluded that the Center's students had similar achievement gains in both their native language and in English. However, at the end of the academic year, they were still achieving at a higher absolute level in their native language than in English.

Noncognitive Measures

The final phase of the evaluation was concerned with testing the hypothesis that the students' experience in the Center would tend to increase their drive to succeed. The instrument selected to measure "drive to succeed" was a local Spanish translation of The Jr.-Sr. High School Personality Questionnaire Anxiety Scale (Institute for Personality and Ability Testing, Champaign, Illinois). The Anxiety Scale of the questionnaire was read to the students in Spanish at the beginning and end of the academic year. The one tailed sign test used to test the hypothesis that the number of increases in anxiety scores was greater than the number of decreases approached, but failed to reach, statistical significance ($p < .075$, one tailed).

Since the results approached statistical significance, an item analysis of the scale was conducted. The item analysis did not provide any insight as to whether the increases in anxiety scores were due to increased drive to succeed or to internal fears and stresses. However, the evaluator concluded that it was doubtful that the increase was due to unreal fears, since anxiety scores at posttest were relatively low compared to the norm.

In summary, eight months' experience in the Bilingual Center resulted in (1) an increase in the participants' IQ, (2) statistically and educationally significant gains in English reading, spelling, language, and arithmetic problem solving, and (3) statistically and educationally significant gains in Spanish reading and arithmetic problem solving. The program did not achieve its goals in the areas of word knowledge and word discrimination, as measured by Metropolitan Achievement Tests.

SOURCES FOR FURTHER INFORMATION

Personnel

For information concerning the Lafayette Bilingual Center program, the following individuals may be contacted:

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MOTHER-CHILD HOME PROGRAM

FREEPORT, NEW YORK

PROGRAM OVERVIEW

In association with the Family Service Association of Nassau County, New York, the Mother-Child Home Program was designed to modify the early cognitive experience of preschool disadvantaged children by "intervening" with a series of verbal stimulation activities planned to raise the child's measured IQ. Intervention was timed to occur with early speech development and within the context of family relationships. The program provided for structured verbal interaction between two- and three-year-old children and their mothers, centered around toys and books brought as gifts to the child by a trained program staff member.

The program grew from concern over the fact that many children from low-income families lacked the cognitive background necessary to succeed in school. In contrast to middle-class children, who were more likely to participate in extensive early verbal interaction within their families, disadvantaged children frequently had poorly developed verbal abilities and consequently, low IQ's.

The Mother-Child Home Program, which began in 1967, had four major components: (1) a focus on mother-child "dyads;" (2) the use of trained "Toy Demonstrators," who worked with the mother and child in their home; (3) Verbal Interaction Stimulus Materials (VISM) consisting of toys and books which formed the basis of the mother-child-demonstrator relationship; and (4) supervision, which included selection of VISM according to specific criteria, development of methods to insure proper presentation of VISM, and monitoring the work of the Toy Demonstrators with each dyad.

The mothers and children who composed the dyads were from three different low-income housing projects in the area of Long Island, New York. The average educational level of parents was about tenth grade, and 40 percent of the mothers were receiving welfare; 90 percent of the families were black. For research purposes, the dyads were divided into a treatment group and comparison groups. Only the treatment group received all the program components. During the first year, the number of dyads in the treatment group was about 30. In succeeding years the number was increased to about 60. Children entered the program at about two years of age and participated in program activities during a seven-month period in each of two successive years.

Program activities were centered around home visits. Twice a week a trained staff member called a "Toy Demonstrator" visited the mother-child dyad. On the first visit each week, a toy or book which was known as a Verbal Interaction Stimulus Material (VISM) was given to the child.

When the Toy Demonstrator introduced the VISM to the dyad, she encouraged the mother to follow her example in employing verbal interaction techniques with the child. On the second visit each week the demonstrator provided a "review" of the VISM and emphasized mother-child interaction. The Toy Demonstrators were trained by the program supervisor and were provided with guide sheets outlining the specific points to emphasize and techniques to follow in introducing each new VISM. During the first year, Toy Demonstrators were all professional social workers. In succeeding years, nonprofessionals -- both paid, low-income workers and unpaid, middle- to high-income volunteers -- were trained to function as Toy Demonstrators.

Children's gains in verbal and general IQ were measured by pre- and posttest scores on the Peabody Picture Vocabulary Test, the Stanford-Binet (for older children) and Cattell Infant Intelligence Scale (for younger children). Children in the treatment group showed statistically and educationally significant IQ gains, both during the first year when professional social workers served as Toy Demonstrators and in the following years when trained nonprofessionals were used.

PROGRAM DESCRIPTION

Context and Objectives

The program originally operated in three low-income housing projects located about 18 miles from each other in the Long Island communities of Freeport, Glen Cove, and Manhasset. In the third year a few children were added from low-income families outside the housing projects. Eligibility criteria for subjects' parents were low socioeconomic status (most families fell into Hollingshead Classes IV and V) and an education level of high school or less. Forty percent of the mothers were receiving welfare. Although the target group was identified by the criterion of poverty without regard to race, the high correlation between being black and being poor led to a sample that was 90 percent black.

The instructional and research design of the program was created by the Verbal Interaction Project and was carried out through the Family Service Association of Nassau County, New York, a nonprofit organization, with financial support from the Children's Bureau of the Department of Health, Education, and Welfare.

Initiation of the program resulted from widespread concern that disadvantaged children were inadequately prepared to profit from public school education because of cognitive handicaps produced by an educationally disadvantaged early childhood environment. One of the main debilitating factors in this environment was felt to be lack of verbal interaction between the child and his family. The project's hypothesis was that introducing such verbal interaction into low-income families with young children might help to foster the child's cognitive growth as measured by his IQ. On this basis a small pilot project was carried out in

1965-66 and was followed in 1967 by the establishment of the full-scale Mother-Child Home Program supported by the Children's Bureau.

The mother-child dyads involved in the program during the first two years were drawn from three low-income housing projects and were divided by housing projects into three experimental groups -- a treatment group and two comparison groups. The treatment group received all program components; one comparison group received visits and non-VISM gifts but no verbal interaction stimulation; and the second comparison group received no special treatment. In 1967-68 participants were two- and three-year-olds, and selection was accomplished by inviting all eligible mothers to participate voluntarily. Response of mothers resulted in a treatment group of 34 dyads, and comparison groups of 9 and 19 dyads. Professional social workers were employed as Toy Demonstrators to visit the homes.

In 1968-69 the new children were all two-year-olds, and 18 nonprofessionals trained and supervised by the social workers acted as Toy Demonstrators. By the third year of program operation, 1969-70, another small pilot study had indicated the greater effectiveness of working with the children for a period of two years, and 19 of the preceding year's subjects were continued in the program for a second year. Under the program's present format, children enter at the age of two and remain in the program for two years; thus there are always two groups of children -- an entering group aged two, and a continuing aged-three group. Also during the third year, a third comparison group was added which received VISM only with no special verbal interaction stimulation.

Personnel

Project Director. The program supervisor had an Ed.D. degree and more than 20 years of experience as a clinical psychologist, social worker, and teacher. She served as both the principal investigator for the research aspect of the program and the project director. In supervising the research she was responsible for design of procedures and for gathering, analysis, and reporting of data. She directed activities of all professional and clerical staff, selected Verbal Interaction Stimulus Materials, and disseminated program information.

Senior Supervisory Social Workers (2). The supervisory social workers had Master's degrees and experience in social work in addition to their experience as Toy Demonstrators at the beginning of the project. Their activities included recruiting paid and unpaid nonprofessional Toy Demonstrators and program subjects, conducting the month-long training workshop for Toy Demonstrators, arranging and supervising their home sessions with dyads, and keeping records and providing counseling in connection with home sessions. They also offered social services to the subjects and referred them to community agencies if necessary.

Senior Social Worker. The senior social worker assisted the supervisory social workers in recruitment, research, and training activities and had the major responsibility for a follow-up study of children who had finished the program. She also directed a pilot family counseling service within the project.

Toy Demonstrators (45). Demonstrators included low-income paid workers (9) as well as middle- and high-income volunteers (36). The paid Toy Demonstrators were high-school educated, many of them former mother-participants in the program. The volunteers were mainly college educated. All received special training prior to service and worked with one or two dyads each. Their work involved stimulating verbal interaction between mother and child with the VISM's. They also maintained records such as diaries of behavior during home sessions, and attended weekly group supervisory conferences.

Psychometrician. After the first year the psychometrician was responsible for pre- and posttesting the children in the treatment and control groups as well as for follow-up testing.

Secretary-Unit Office Manager and Secretary. The secretary-unit office manager supervised clerical duties such as typing and mimeographing, record-keeping, ordering and maintaining stock of VISM, keeping files, and handling communications. The secretary assisted her in all of these duties.

Methodology

Program methodology was designed to foster cognitive development of disadvantaged youngsters by stimulating verbal interaction between the children and their mothers. Interaction was highly structured and involved four essential components:

- mother-child dyads
- trained Toy Demonstrators
- Verbal Interaction Stimulus Materials (VISM)
- supervised intervention techniques

Mother-child dyads. Selection of the mother-child dyads was begun by sending a letter to all tenants in the three low-income housing projects which described the program and invited inquiries. The letters were followed by door-to-door invitations to mothers of preschool children who were approximately 20 months old. Mothers who expressed interest in the project were visited by the program supervisor who gathered information on the family which would be helpful to the Toy Demonstrator in working with the dyad. Such information might include, for example, number of siblings and their age-relation to the program child.

Mothers varied greatly in their quickness to learn and their degree of sensitivity to the program goals and verbal interaction techniques. Some were highly successful in working with their children; others remained passive throughout the entire two-year program. Program methods took such variations into acount, providing for flexibility in approach to the dyads and attention to the needs of each dyad in group and individual supervisory conferences.

Toy Demonstrators. The Toy Demonstrators were selected on liberal criteria and received special training before beginning to work with dyads. The Toy Demonstrator's role required development of a warm relationship with the mother and child, demonstration of verbal stimulation techniques, and the development of maximum mother participation. The Toy Demonstrator visited each dyad twice a week for a half-hour home session. On the first visit each week she brought with her either a toy or a book which she used as a Verbal Interaction Stimulus Material. She introduced the VISM to the child, encouraging him to talk by asking him questions, listening to his answers, and replying. At the same time she drew the mother into the session by modeling verbal stimulation techniques which the mother then imitated. She also encouraged the mother to read and play with the child between home sessions.

Verbal Interaction Stimulus Materials (VISM). The 11 toys and 12 books used each year to stimulate verbal interaction within the mother-child dyad were presented to the child as gifts, one each week in alternating order. During their initial session, the mother and the Toy Demonstrator cooperated in putting together a special toy chest designed to store the VISM.

VISM were selected each year on the basis of several criteria related to their "stimulating" qualities. For toys, perceptual criteria included having strong primary and secondary colors, possibilities for spatial organization and form fitting, possibilities for simple sound stimuli when manipulated by the child, and presence of simple geometric shapes, and attractive and varied tactile qualities. Other criteria were durability and safety, possibility of encouraging large muscle activity and development of dexterity, stimulation of imaginative play, challenge to problem solving, and ability to act as a stimulus for self-rewarding activity. The VISM books were selected to be appropriate for the children's age and interests, interesting to mothers, simple in language, of good literary quality, and generally appealing in content and format.

Supervised intervention techniques. Supervision was concerned with both the research and the instructional aspects of the overall intervention program. Supervisory personnel were responsible for selection of dyads, selection and training of demonstrators, monitoring of progress between dyads and demonstrators, and overall intervener evaluation.

Special instruction techniques were used to assure general uniformity of intervention procedures. During the semi-weekly half-hour home sessions, the demonstrators used a variety of methods to stimulate the children to think, question, and talk, and encouraged verbal interaction between the children and their mothers. They followed a similar approach for all VISM, but the level of complexity increased to match the children's progress and the greater sophistication of the VISM provided as they grew older. Similarly, the mother was encouraged to play an increasingly active role as she demonstrated a grasp of the techniques being modeled by the demonstrator.

Interaction techniques were divided into the following eight categories of verbal or verbally stimulating behavior:

- giving information
- eliciting responses from the child
- describing toy manipulation aloud
- giving positive motivation
- verbalizing social interaction by inviting or cooperating
- encouraging reflection
- encouraging divergence
- engaging the child's interest in the book or toy

"Giving information" included naming features of the toy or book such as color, shape, or size, and encouraging the child to name them. In encouraging reflection, the Toy Demonstrator used words in many ways to remind the child to think about what he was doing during the home session. She and the child might describe their own actions in playing with the VISM. She attempted to arrange the play so that the child had choices to think about and make; she pointed out the times when self-control and doing things in the right order would help the child have a better time with the VISM. She also encouraged him to use words in remembering other experiences like the one he was having with a particular toy or book.

Materials. The VISM materials used in each year's program were two sets of 23 toys and books, one set for two-year-olds and another for three-year-olds. There was also a toy chest for storage of VISM which the mother and Toy Demonstrator put together on the first session. Some specific examples of VISM for two-year-olds and for three-year-olds are given below. They are listed in the order in which they were used, and the numbers indicate the home session to which each VISM was assigned.

	Examples of Materials:	Publisher/Manufacturer:
	For two-year-olds:	
1	Pat the Bunny (book)	Golden Press
2	Col-o-roll Wagon block cart	Playskool
3	Goodnight Moon (book)	Harper & Row
4	Transportation puzzle	Sifo
16	Musical instruments -- bell, tone block, etc.	Childcraft
18	Magnetic Form Board	Child Guidance
	For three-year-olds:	
1	Put Me in the Zoo (book)	Random House
2	Can of blocks	Playskool
3	Let's Find Charlie (book)	Random House
4	Play kitchen	Fisher-Price
16	Xylophone	Tudor
18	Number Learner	Childcraft

Facilities and schedule. The program's office facilities were furnished by the Family Service Association of Nassau County. Facilities included an office for the program supervisor, space for secretarial activities, and a large conference room for training workshops and weekly conferences. Instructional activities of the program took place in the homes of the mothers, and the Toy Demonstrator and dyad used whatever facilities lent themselves most conveniently to their activities. Each year the schedule of twice-weekly, half-hour home sessions continued for about seven months, beginning in October and ending in May.

Personnel training. The Toy Demonstrators were trained in an eight-session training workshop. The sessions included a general introduction to such topics as program methodology, working in poverty areas, psychosocial development of two- and three-year-olds, relation of language to cognitive development, nature of mother-child interaction, and specific plans for the first meeting with dyads. The Toy Demonstrators also received a VISIT (Verbal Interaction Stimulus Intervention Techniques) handbook outlining general methodology.

At the weekly conferences the supervisor demonstrated use of VISM and gave demonstrators mimeographed guide sheets for each new VISM. The guide sheet outlined specific procedures to be used during her next home session with the dyads. Within the general framework of procedures given in the guide sheets, the Toy Demonstrators were encouraged to be flexible and creative in their implementation of the verbal interaction techniques, adapting to the needs and characteristics of each dyad.

Specific Example of Methodology

The guide sheet for the book The Snowy Day furnished the following specific examples of methods used by the Toy Demonstrator to stimulate verbal interaction in connection with this particular VISM. The demonstrator was directed to invite the child to look and listen, to sit with the child between her and the mother, to show and read the title page, to show how to turn the pages and treat the book, and to read slowly and clearly. She was to stop at most illustrations to invite the child to point out and name colors, shapes, sizes, numbers, and relationships. She could also invite the child to tell about his own experiences (e.g., "Did you play in the snow, like Peter?"). Finally, the Toy Demonstrator was to encourage the mother to take over the reading as soon as she and the child seemed ready.

The following description of an actual home session in which these types of techniques were applied is excerpted from an account written by a Toy Demonstrator.

> Joe sat down on the couch between his mother and me, having had a few moments to look at the book before his mother joined us. Joe has a pixie-like, teasing quality which often manifests itself at some time during a session; it did so again today.

He was eager both to give information and to request it. Very often Joe would name items which attracted him, and would say: "What's that?" When he next encountered the same thing he needed only the response, "Tell me!" before he would give the correct answer. The teasing quality appeared early when he pointed to two girls and called them "boys," immediately after he had correctly identified the sexes.

I read the text underneath the illustrations, and after a few pages, turned the reading over to his mother, who easily followed my lead. In retrospect, it seems that he displayed most enthusiasm over the more active, busy pictures, occasionally exclaiming wordlessly after turning a page and observing a fresh, busy illustration. We continued through the book, allowing him freedom to turn the pages as he wished, waiting for his initial response, reinforcing or discussing what he said and asking for additional comments, while his mother read the text at the bottom of the pages.

Dissemination activities. A guide for replication of the Mother-Child Home Program and accompanying model kit of forms, schedules, Toy Demonstrators' handbook, and curriculum materials used in the program are available through the program director. Other materials available are film, slide, tape, and cassette presentations of home sessions.

Budget

Mother-Child Home Program replication costs vary with the number of dyads, the number of paid Toy Demonstrators and clerks, the nature of facilities, etc. A model annual budget for 80 children and a combination of paid and unpaid Toy Demonstrators is given below:

	% of time	Cost
Program Supervisor-Coordinator	100	$ 10,500
Paid Toy Demonstrator	100 for 35 weeks	2,450
Paid Toy Demonstrator	100 for 35 weeks	2,450
or in place of Paid Toy Demonstrator, a Program Supervisor	50	5,000
20 Volunteer Toy Demonstrators	part-time	0
Secretary-clerk	50	3,000
Verbal Interaction Stimulus Materials (VISM)	--	8,960
Office supplies	--	500
Overhead (rent, telephone, maintenance, etc.)	--	1,500
	Total	$ 29,360

On the basis of the above estimated budget, and the assumption of 80 children served, the per-child cost would be $367.

EVALUATION

The Mother-Child Home Program formally began on 1 July 1967 and was funded by the Children's Bureau, U. S. Department of Health, Education, and Welfare. During its early years of operation there were minor variations in subjects, "interveners," and procedures. Similarities from year to year, however, far outweighed the differences.

The program originally involved a treatment group and two comparison groups. A third comparison group was added in 1969-70. The groups were formed of parent-child volunteers from three separate, low-income public housing projects on Long Island, New York. While there was no reason to expect that residents of any one project would differ systematically from residents of any other, some minor differences were found between groups of volunteers. In all cases, however, the differences favored the comparison groups and thus would not invalidate the results described below.

The Mother-Child Home Program attempted to elevate the IQ's of two- and three-year-old disadvantaged children by increasing their verbal interaction with their mothers. Interactions were structured through periodic home visits by trained "interveners" who also provided toys and books as Verbal Interaction Stimulus Materials. The program was evaluated by comparing mean intelligence test scores of the treatment and comparison groups at the beginning and end of the treatment period. The evaluation employed the Peabody Picture Vocabulary Test (PPVT) and either the Stanford-Binet (for the older children) or the Cattell Infant Intelligence Scale (for the younger children). The Cattell test is considered to be a downward extension of the Stanford-Binet and, since scores are comparable, no distinction will be made between the two tests in the subsequent discussion.

The design of the evaluation in the first year was such that the psychologist who tested the children was aware of the group to which they belonged. Because this knowledge might have unconsciously influenced his testing behavior and affected scores, testing sessions were tape recorded and subsequently judged by qualified experts unfamiliar with the investigation. No evidence of examiner bias was found. After the first year, the psychometrician tested blind.

Cognitive Status

During the first year of operation, professional social workers were employed to administer the Mother-Child Home Program. Thirty-three two- and three-year-old children received the program treatment over a period of approximately seven months. Nine children of comparable age and background constituted one comparison group, C_1. These children were visited by a "kindly adult figure" on the same schedule as visits were made to children in the treatment (T) group, but they received no other component of the treatment. A second comparison group of 11 children (C_2) received no treatment at all. All children were tested at the beginning and end of the treatment period. Results of these testings are summarized in Tables 1 and 2.

TABLE 1

Summary of Cattell/Stanford-Binet IQ Status
Before and After Program Treatment 1967-68

	Mean IQ			Differences	
	T (N=33)	C_1 (N=9)	C_2 (N=11)	T - C_1	T - C_2
Pretest	84.9	87.4	92.0	- 2.5	- 7.1
Posttest	101.9	88.4	94.0	+ 13.5*	+ 7.9
Gain	+ 17.0**	+ 1.0	+ 2.0	+ 16.0**	+ 15.0**

* $p < .05$, two tailed
** $p < .01$, two tailed

With respect to the general intelligence measure, the treatment group made large and statistically significant gains which were not matched by the performance of either comparison group (see Table 1). Results with the PPVT IQ measure were slightly less dramatic but still significant and in the predicted direction (see Table 2).

Seventeen of the original treatment group children had no further contact with the program but were administered follow-up tests 30 months after the original pretest. At that time they retained a mean general IQ gain of 12.7 points as compared to the 17 point gain they showed immediately after the seven-month treatment. On the PPVT they showed a 14.1 point retained gain as opposed to the 15 point gain they showed immediately after the treatment. Both retained gains were statistically significant ($p < .01$).

TABLE 2

Summary of Peabody Picture Vocabulary Test IQ Status
Before and After Program Treatment 1967-68

	Mean Verbal IQ			Differences	
	T (N=29)	C_1 (N=9)	C_2 (N=11)	T - C_1	T - C_2
Pretest	76.8	82.6	84.1	- 5.8	- 7.3*
Posttest	89.0	78.6	88.8	+ 10.4*	+ 0.2
Gain	+ 12.2**	- 4.0	+ 4.7	+ 16.2**	+ 7.5

* $p < .05$, two tailed
** $p < .01$, two tailed

Over the same 30-month time period, the untreated comparison group (C_2) showed a general IQ gain of 2.3 points (nonsignificant) and a PPVT IQ gain of 12.0 points ($p < .05$). These gains are somewhat difficult to interpret since five children were included in the follow-up testing for whom no previous data were available.

Nine children of the original treatment group participated for a second year to the extent of receiving additional Verbal Interaction Stimulus Materials (VISM) only. They did not show additional gains as a result of this partial treatment.

Five children of the original treatment group were given both VISM and an additional nine home sessions during the second year of the program. At the end of the first year of treatment these children showed a general IQ gain of 18 points whereas at the end of the second year it had increased to 24.8 points. Their second year PPVT IQ gains were greater -- increasing from 9.6 points at the end of the first year to 20.8 points at the end of the second year.

Although the statistical significance of the gains attributable to the second year of program participation was not assessed, the apparent gains led to adoption of a two-year format beginning with the second year of the program.

Also beginning with the second year of the program, use of professional social workers was abandoned and nonprofessional women of varying income and education were trained to administer the treatment. Eight children from the first year C_1 comparison group (visitor only) and 27 new subjects (half were selected from outside the housing development) were assigned to the second year treatment group (T_2). Nineteen of these new subjects continued in the program for a second year.

A third treatment group (T_3) of 30 children participated in the program during its third year of operation. At the same time a third comparison group (C_3) was added which received the VISM component of the treatment only. All groups were pretested and tested again after each year of treatment. Results of these testings are presented in Tables 3 and 4.

TABLE 3

Summary of Cattell/Stanford-Binet IQ Status Before and After Program Treatment 1968-69 and 1969-70[1]

	Group			
	T_2 (C_1)	T_2 (New)	T_3	C_3
Pretest	88.5	88.9	86.1	85.0
N	8	27	30	12
After 1 Year	98.5	100.6	101.9	93.0
N	8	27	30	12
Gain	+ 10	+ 11.7**	+ 15.8**	+ 8.0*
After 2 Years	-	108.6	-	-
N		19		
Gain	-	+ 17.2**	-	-
Follow-Up	109.1	-	-	-
N	7			
Gain	+ 18.1**	-	-	-

* $p < .05$
** $p < .01$

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[1] It should be noted that the gains shown in these tables are not always equal to the differences between the corresponding means. Where

TABLE 4

Summary of Peabody Picture Vocabulary Test IQ Status Before and After Program Treatment 1968-69 and 1969-70

	Group			
	T_2 (C_1)	T_2 (New)	T_3	C_3
Pretest	83.4	84.0	81.8	85.5
N	8	27	30	12
After 1 Year	86.8	89.3	90.4	79.3
N	8	27	30	12
Gain	+ 3.4	+ 5.3*	+ 8.6**	- 6.2
After 2 Years	-	96.0	-	-
N		19		
Gain	-	+ 17.6*	-	-
Follow-Up	102.0	-	-	-
N	7			
Gain	+ 17.6*	-	-	-

* $p < .05$
** $p < .01$

As was the case with the first year of program operation, greater gains were achieved on Cattell/Stanford-Binet than on PPVT IQ's. Statistically significant gains were produced in both areas, however, although they were not equal in magnitude to those obtained when professional social workers administered the program treatment.

On the basis of these data, it can be concluded that the Mother-Child Home Program achieved its objectives in producing statistically and educationally significant IQ gains.

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1. (cont'd) sample sizes (N's) are different, gains are based on cases for which both pre- and posttest scores were obtained.

Mothers' Reports of Family Attitudes and Behavioral Change

Mothers' reports data are far less comprehensive than the test data reported above. Chi Square analyses of follow-up interview data revealed that significantly ($p < .01$) more mothers of treated children considered the program "good or excellent" than mothers of the untreated comparison group (97 percent versus 38 percent). At the same level of statistical significance, more mothers of the treated group felt that the program had helped their children in initial and later school adjustment than did mothers of the untreated group.

A more complete list of questions was asked of mothers in final interviews conducted at the end of the second and third years. During the second year, however, there was no comparison group and during the third year the comparison group received a partial treatment (VISM). While the responses of all mothers were generally favorable toward the program, no statistically significant differences between treatment and comparison groups could be found.

Although mothers' reports data are far from conclusive, they are considered generally supportive of the success of the Mother-Child Home Program.

SOURCES FOR FURTHER INFORMATION

Personnel

For further information concerning the Mother-Child Home Program, contact:

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PROJECT BREAKTHROUGH

CHICAGO, ILLINOIS

PROGRAM OVERVIEW

Project Breakthrough was an experimental training and social service program for preschool-age children whose families received public assistance in Cook County, Illinois. The primary objective of the program was to overcome some of the early environmental deprivation experienced by preschool poverty children and thereby better prepare them to compete in the regular school environment. The program employed a two-pronged training and social service attack on the educational and social needs of preschool disadvantaged children.

The educational aspect of the program was called the "Edison Responsive Environment" (ERE). It consisted of three components: (1) computerized, electric "Talking Typewriters" programmed to encourage language skills development, (2) transfer sessions which reinforced the "Talking Typewriter" sessions, and (3) nursery school experience. Daily 90-minute training sessions provided exposure to all three components.

Social services were also part of the program with qualified caseworkers providing regular social services to some families, and intensive social services to others. Social workers with normal case loads served the families that received regular services for seven months. Case loads were reduced for workers who served families on the intensive service schedule and those families received nine months of service.

The project was concerned with determining independently the effects of training and of intensive social work. Also of concern was the combined effect of the two. The evaluation design therefore required four treatment groups:

Group I - ERE training and intensive social services
Group II - No ERE training and intensive social services
Group III - ERE training and regular social services
Group IV - No ERE training and regular social services

Groups I and II received nine months of intensive social services while Groups III and IV received only seven months of social services. ERE training was provided to Group I for nine months and Group III for seven months. No ERE training was given to Groups II and IV.

Program effects were measured by the Stanford-Binet intelligence test, the Peabody Picture Vocabulary Test (PPVT), and the Metropolitan Readiness Test (MRT). ERE training was found to improve the children's IQ, vocabulary, and reading readiness significantly. Intensive social work had a positive effect on family functioning, vocabulary, and reading readiness; but it had no effect on IQ or social maturity. The effects of ERE training and social work were found to be independent and additive.

PROGRAM DESCRIPTION

Context and Objectives

Project Breakthrough served 136 preschool children from families living within a five-mile radius of the project's inner-city training center in Chicago. In-depth study of salient economic, educational, and social characteristics of these families established that they could be typified by their extreme poverty, poor education, large size, and spasmodic employment history. All of the families were receiving public assistance. Most of them lived in public housing units, were nonwhite, and fatherless. The educational background of the mothers was characterized by a high dropout rate and a high degree of functional illiteracy as measured by a standard reading test. The families were found to be representative of the total public assistance population in Cook County.

The project staff felt that the poverty environment ill-prepared disadvantaged children for the demands imposed by the regular school environment. Further, they suggested that a combination of a responsive training environment and intensive social work services could improve disadvantaged children's readiness for the demands of the classroom.

Personnel

There were five categories of Project Breakthrough staff: administrative, laboratory, nursery, social work, and ERE maintenance. The qualifications, experience, and duties of the staff in each category are described below. Unless otherwise indicated, staff served the project on a full-time basis.

Administrative Staff:

- Program Director. The program director was responsible for coordinating, directing, budgeting, and exercising general supervision over the project. He had several years of management experience and served as an education consultant to the Cook County Department of Public Aid.

- Assistant to the Administrator. This position involved data gathering and analysis, report writing, and some test development. The assistant held a Bachelor's degree and credits toward a Master's degree in speech correction.

- Project Coordinator (Education). The project coordinator held a Bachelor's degree, a Master's degree, and a teaching credential. She had language arts consulting and 15 years of teaching experience. The project coordinator directed the nursery staff and acted as liaison between the program director and the ERE laboratory staff. Prior to serving the program, she had received special ERE training at the Responsive Environments Foundation in Hamden, Connecticut.

Administrative support staff included a secretary and a records technician.

Laboratory Staff:

- ERE Laboratory Supervisor. The laboratory supervisor had a Bachelor's degree and several years of experience as a vocational placement counselor. Prior to the start of the program, she had been trained at the Responsive Environments Foundation in ERE methodology. Her project duties included directing the booth attendants in the implementation of ERE procedures and techniques. She also worked closely with the program director and the nursery staff to insure proper coordination of ERE training with the nursery activities.

- Assistant ERE Laboratory Supervisor. The assistant held a Bachelor's degree in social work, had some Head Start experience, and had completed two years of casework experience. She, too, had been trained at the Responsive Environments Foundation before assuming her project assignment and helped the laboratory supervisor administer the ERE program according to its prescribed methodology. In this connection, her duties included monitoring the booth attendants and assisting in their training.

- Booth Attendants (7). The booth attendants were responsible for running the ERE training sessions and for conducting the ERE transfer sessions. They were all high school graduates with clerical experience. The attendants received special pre- and inservice ERE training.

Prior teaching experience was avoided in selecting laboratory staff since the transition from teacher-directed instructional methods to the ERE procedures was expected to cause problems for teachers. ERE procedures required laboratory staff to remain relatively passive in the instructional process whereas teachers usually play more active roles.

Nursery Staff:

- Teachers (2). Both teachers held Bachelor's degrees. One had a teaching certificate and some classroom experience. The certified nursery teacher supervised her fellow teacher and their aides during nursery activities.

- Teaching Aides (2 full-time, 6 part-time). The aides were all female high school dropouts between the ages of 16 and 18. They assisted the teachers without playing an instructional role. The two full-time aides and the two teachers were in charge of the nursery.

Social Work Staff:

- Supervising Caseworker. The supervising caseworker was responsible for overseeing four subordinates. She held a Bachelor's degree and had several years of foster-child experience in the County Public Aid Department.

- Caseworkers (4). The caseworkers visited the homes of the families of children in both experimental and control groups, providing supportive counseling and referral services as needed. All caseworkers held Bachelor's degrees and had at least one year of experience with the Cook County Public Aid Department. In addition, the caseworkers received brief exposure to ERE methodology so that they could explain children's progress to parents in the experimental group.

- Community Representative. The community representative lived in the project's target area and had been a welfare recipient herself. Through home visitations she ascertained parents' reactions to their children's participation in the program and helped work out problems the children were experiencing at the project site. Her reports provided assistance to the caseworkers and project personnel in working with children and their families.

ERE Maintenance Staff:

An ERE service technician was supplied by the Thomas A. Edison Laboratories (the manufacturer of the ERE computerized learning equipment). The technician kept the Talking Typewriters in working order to assure uninterrupted operation of the project.

The project staff also included a bus attendant who supervised the children enroute to and from the center.

Methodology

The project's experimental education program consisted of three components: (1) experience on the Edison Responsive Environment Talking Typewriter (a computerized electric typewriter on which children learned to recognize and discriminate letters and to construct words); (2) reinforcement of ERE learnings in special transfer sessions; and (3) nursery school experience. In addition to the educational program components, either regular or intensive social services by qualified caseworkers were provided to families of children in experimental and control groups. The methodology which characterized each of these four components is detailed below.

ERE training sessions. The ERE training system was based on the "autotelic responsive environment" theory of Dr. Omar K. Moore. Dr. Moore defined a "responsive environment" as one which (1) permits the learner to explore freely; (2) informs the learner immediately about the consequences of his actions; (3) is self-pacing, i.e., events happen within the environment at a rate determined by the learner; (4) permits the learner to make full use of his capacity for discovering relations of various kinds; and (5) is such that the learner is likely to make a series of interconnected discoveries about the physical, cultural, or social world (Moore, 1966, p. 170). An autotelic responsive environment is contrasted with conventional training in which the teacher gives or withholds reinforcement, selects and provides the content, and controls the pace of the learning situation.

In Project Breakthrough, the major components of the responsive environment system were presented to the children through the use of ten computerized electric typewriters. These devices have been termed "Talking Typewriters" because whenever a key is depressed and released, the machine not only types a letter but also pronounces the name of the character which has been typed. The Talking Typewriter keyboard resembles that of a standard electric typewriter, the main difference being that the keys are divided into eight color groups, corresponding to the finger positions in touch typing. To help the child use correct fingering, his nails are painted to correspond to the eight color groups on the keyboard.

During the project's initial ERE sessions, the Talking Typewriter was in a nonautomated phase, and the child was free to explore the keyboard and other machine parts on his own and unattended. After the child demonstrated that he knew what happened when he depressed and released a key (i.e., that an impression was made on the paper roll, that the machine pronounced each character name immediately after he released a key, and that the same letter and sound would be exhibited if he pressed the same key again), a booth attendant joined him during his ERE sessions. The booth attendant worked with the child until he could quickly recognize and locate letter shapes and names on the keyboard.

Once the child could locate any given letter on the keyboard without difficulty, the Talking Typewriter was set in an automated phase. During subsequent ERE training, instructional stimuli were provided by the machine via illuminated letters or words, and instructions given by the machine's recorded voice. In automated ERE sessions, the child's instructional sequence was programmed and activated by the computer. The machine could be set so that the entire keyboard was locked except for the key which matched the name of the character the child was to identify. The ERE booth had provisions for either transmitting the child's verbal responses to the external control panel or internally tape-recording his responses.

The child progressed from initial exploration of the keyboard and alphabet to more complex preprogrammed "games." Depending on his level of mastery, the child might be required to locate a letter or construct a word. He remained in one phase (e.g., free exploration) until his interest waned. The number of sessions spent in each phase of training was determined by the laboratory staff and necessarily varied considerably from child to child. The booth attendants kept track of the daily progress of each child on individual cumulative records. A child's cumulative record included objective and subjective aspects of his performance. The decision to initiate and terminate the daily ERE activity was always left entirely to each child.

ERE transfer sessions. In contrast to his solitary learning activities during the ERE training sessions, the child participated in group learning experiences during the ERE transfer sessions. The transfer session activities were conducted in small groups of four or five children by a booth attendant. Activities were designed to reinforce ERE learnings and to relate these learnings to home, community, and future school-related activities. During his weekly transfer session, the child participated in games, discussions, and exercises which involved finding letters, matching words and letters, matching words to pictures, discriminating shapes and sounds, and constructing words. As in the ERE training sessions, the child was free to leave the activity at will.

Nursery school experience. At the beginning of the year and prior to their introduction to the Talking Typewriter, the children spent all their time in the nursery area, exploring their surroundings and doing whatever they fancied without interruption. During these first several days of self-selected activity, the nursery and laboratory staff simply observed the children. As the children became adjusted to the nursery routine, they were phased into the laboratory.

- Self-selected activities. Each daily session began with a short free-play period. Children played with blocks, bikes, and wagons; manipulated readiness materials geared for four-year-olds; and looked at large picture books at library tables, etc.

- Small-group activities. Groups of four or five children, each led by an aide, engaged in relatively structured learning experiences adapted to the individual needs of the children in each group. For example, one group might play games emphasizing color recognition while another group participated in cut-and-paste activities. During this time, the two nursery teachers passed among groups providing instruction or guidance as needed and coordinating small-group work to suit the day's schedule of nursery and ERE activities.

- Total-group activities. Story-telling, show-and-tell, dramatization, reading readiness games, and other game-like activities frequently involved the entire group. To close the nursery period, one of the teachers guided the group in conversation. Children could talk about whatever they liked. The purpose of the daily open-ended conversation was twofold. First, the children practiced communication and social skills, and second, the subject matter they introduced was added to the program content of ERE activities.

The ERE training and transfer sessions described in the preceding sections were conducted concurrently with the above nursery activities.

The children simply left the nursery to take part in training and transfer sessions and resumed nursery activity upon their return.

Social work. Caseworkers from the Cook County Department of Public Aid visited the families as needed for a minimum of one visit per family per month to a maximum of one visit per family per week. The caseworkers provided their services, which included supportive counseling and referrals for dental and medical care, to families of children in both experimental and control groups. As called for by the project's research design, two types of service were provided: regular and intensive social work, with the difference between the two being purely quantitative. Thus, families receiving intensive social service were visited for nine months as compared to seven months for their regular-service counterparts. Moreover, the intensive-service caseworkers carried half as heavy a case load as their regular-service colleagues, namely, 30 families as compared to 60 families.

Physical layout. The project was housed on the first floor of a four-story building on Chicago's west side, approximately five miles from the city's central business and shopping district. In addition to administrative space provided, the building had three main areas -- the nursery, the ERE laboratory, and a small-group activity room. Each area is described, in turn, below.

The nursery was equipped with furniture and toys selected to suit the needs and interests of preschoolers. One section of the nursery area had a playhouse with a toy-sized kitchen and dining area; another section had a small library area where books were readily accessible for browsing. Other areas in the room had interest centers set up for children to explore, such as puzzle area, clay and sand area, and wheel toy area.

The ERE laboratory was a separate room in which the ten Talking Typewriters were located, each enclosed in a large, well-lighted and sound-proofed booth. One-way viewing screens located in the walls and doors of each booth, and a two-way communication system between the booth and the outside control panel, provided the attendant with constant visual and auditory contact with the child.

Another room was reserved for ERE transfer sessions. The table and chairs were sufficient to accommodate one small group of four or five children for the special ERE transfer activities.

Schedule. The children spent 90 minutes at the project site daily. When they arrived at the center, they put their wraps in their individually assigned lockers, attendance was taken, and their fingernails were painted with nontoxic water colors corresponding to the color groups on the Talking Typewriter. The children then went to the nursery area where the daily sessions began and ended.

The children remained in the nursery area from 60 to 80 minutes, depending upon whether they accepted their daily invitation to the ERE training sessions and their weekly invitation to the ERE transfer sessions. Each of these sessions lasted up to 20 minutes, with the child free to decline the invitation to attend and free to leave before the 20 minutes had elapsed. All the time when the children were not at either of the ERE sessions, they were in the nursery area. They were called from the nursery area for their ERE sessions and they returned to that area when they decided to leave the sessions.

While in the nursery area the children had a minimum of 20 minutes of self-selected activities and 20 minutes of group activities. The remainder of their time was spent in one of the other specially planned nursery activities or at one of the ERE training sessions.

Staff planning. The laboratory staff met daily to evaluate the children's progress. The children's ERE training schedules were adjusted on the basis of these assessments. Another staff activity was the preparation of separate weekly ERE activity schedules for each child. Made up a week in advance, these schedules were considered tentative and subject to daily modification as a result of staff conferences. The project coordinator attended staff meetings once a week and coordinated the plans of both nursery and laboratory personnel.

Inservice training. An intensive, five-week training program was provided through the facilities of the Responsive Environments Foundation in Hamden, Connecticut. There, the project coordinator and laboratory supervisors were trained in the techniques and procedures necessary for operating the autotelic learning environment. These staff members then returned to Chicago and assumed responsibility for training the Project Breakthrough laboratory staff. The Chicago training consisted of pre-service and inservice phases. Pre-service training included (1) introduction to the responsive environment methodology, (2) training in procedures relating to the Talking Typewriter, (3) instruction in conducting ERE sessions, and (4) preparation for creating program materials. Inservice training, conducted about two months after ERE laboratory sessions were underway, provided instruction on how to conduct the special ERE transfer sessions.

Caseworkers received no special training for their project work other than a few hours' exposure to the ERE methodology. The purpose of this briefing was to enable them to assist parents in understanding the progress or problems their children might be experiencing in connection with the ERE sessions.

Budget

Project Breakthrough was funded by the Office of Economic Opportunity. The activities of the program as described here were completed during 1966-67. The 1969 final report provides the most detailed description of the program. That report does not, however, provide budget information.

The American Institutes for Research (AIR) found it impossible to get budget information for the 1966-67 year of operation since the original program staff is no longer directly associated with Cook County Department of Public Aid and the financial records for the program could not be located.

The Department of Public Aid did, however, refer AIR to a former staff member who is currently running a similar project with the original ten Talking Typewriters in the Chicago School System. She provided us with the following estimate of what it would cost to replicate the original Breakthrough program.

Project Breakthrough Estimated Replication Budget (1971 dollars)

Salaries	$ 195,000
Payroll Associated Cost	20,000
Equipment	
10 ERE Talking Typewriters	400,000
6 Air Conditioners	1,800
Office equipment	2,500
Supplies	
Office	600
ERE	3,000
Nursery	11,000
Travel	2,000
Consultant Fees	3,000
Advisory Board Expense	1,250
Maintenance	20,000
Program Rental	7,290
Total Program Cost	$ 657,440

On the basis of the above estimates, the following per-pupil figures reflect start-up and continuation costs for providing a similar complement of ERE training and social work services to 136 children, divided into four treatment groups, as per the experimental design employed by Project Breakthrough. Per-pupil cost for replication with 136 pupils would be approximately $9,668 per pupil the first year and approximately $3,630 per pupil each succeeding year. In actual practice, the per-pupil costs could be substantially reduced by more intensive use of the Talking Typewriters.

EVALUATION

The primary objective of Project Breakthrough was to demonstrate that a combination of Edison Responsive Environment (ERE) training and social work services could raise preschool, disadvantaged children's skill level in the areas of reading and language development. The three major hypotheses related to that overall objective were: (1) children who receive ERE training will demonstrate higher achievement gains than a similar group of children who do not receive training, (2) children whose families receive intensive social work services will demonstrate better performance on a variety of criterion measures than a group of similar children whose families receive regular social work services, and (3) children who receive a combination of intensive social work services and ERE training will obtain higher performance ratings than a group of similar children who receive only regular social work services.

In response to a request by Project Breakthrough, the Illinois Department of Public Aid provided a list of families that appeared to meet the following selection criteria: (1) the family have one or more or more children in the 3.5 to 5.5 age-range, (2) they reside within a five-mile radius of the inner-city training center, and (3) they be on the public assistance rolls. Letters were sent to the recommended families inviting them to attend a meeting where the project was explained and their participation sought. Families who agreed to participate were referred for pretesting. Social caseworkers concurrently gathered social characteristics information on the families.

The final evaluation sample consisted of 136 preschool, disadvantaged children equally divided into four treatment groups. The treatment groups were characterized as follows:

Group I - ERE training and intensive social services
Group II - No ERE training and intensive social services
Group III - ERE training and regular social services
Group IV - No ERE training and regular social services

The initial participants were matched on the basis of Stanford-Binet intelligence test (Form L-M) pretest scores, and one member of each matched pair was randomly assigned to one of the intensive social service groups. When those groups were filled, one member of each of the remaining matched pairs was randomly assigned to one of the two regular social service groups. Assignment was completed when each of the four treatment groups had a total of 34 children.

The ERE training program consisted of three components, viz: the nursery experience, the autotelic responsive environment provided by the Talking Typewriters, and the transfer sessions. The children in Group I and Group III attended the training center each day for one and one-half hours. Training was terminated at the end of seven months for Group III and at the end of nine months for Group I.

At completion of the program, Group I children averaged 14 hours of experience with the Talking Typewriters and attended an average of 8.1 20-minute transfer sessions. Group III children had received an average of 11.3 hours on the typewriters and 5.5 transfer sessions. In terms of the three ERE training components, the children clearly spent most of their time in the nursery sessions.

Social services were provided by caseworkers from the Department of Public Aid. The intensive social service groups, I and II, received their social services for a nine-month period from social service caseworkers with reduced case loads (30 families per caseworker). Regular social services were provided to Groups III and IV by caseworkers with normal case loads of 60 families for a duration of seven months. The intensive service families were visited more often in their homes by caseworkers, they visited the caseworker's office more often, and there was more telephone contact between the families and the caseworkers in the intensive group than in the regular group.

The three standardized tests used to measure the effects of the training variable were the Stanford-Binet (Form L-M), the Metropolitan Readiness Test, and the Peabody Picture Vocabulary Test. Pre- and posttest data were collected with the Stanford-Binet and Metropolitan. The Peabody was administered only at the end of training. The effect of the social work variable was measured by a locally developed nonstandardized instrument entitled the Family Functioning Instrument. This instrument was designed to rate the way the family as a unit conducts those daily affairs which have a significant impact on the growth and development of the intellectual abilities of children. The physical facilities and possessions in the home were also recorded on the instrument as were specific urban experiences. Finally, the effect of the nursery experience and the provision of social work on the social maturity of the children was measured by the Vineland Social Maturity Scale. Both the Vineland and the Family Functioning Instrument were administered before and after treatment.

Analysis of variance and analysis of covariance models were used for data analysis. It was hypothesized that the ERE training would have a greater effect than no training, that intensive social work would have more effect than regular social work, and that the combination of ERE training and intensive social work would have a greater effect than either alone.

The analysis of variance model was used on pretest data in all cases and, in most situations, where pre- and posttest data were collected. The covariance model was used primarily in cases where only posttest data were collected as a means of adjusting for initial IQ differences.

Pretest Results

Analysis of the Stanford-Binet pretest scores indicated that subjects assigned to the two training groups were not significantly different. Small but statistically significant differences were found between social service groups, however, favoring the regular social service group. The Vineland Social Maturity Scale pretest scores, when subjected to variance analysis, were found to be not significantly different ($p > .05$, two tailed).

To document the fact that the children in the program could not read prior to training, a sample of 41 from the two ERE training groups was pretested with the Metropolitan Readiness Test. Variance analysis of those pretest scores indicated that the two groups were not significantly different (p > .05, two tailed). In terms of reading readiness, the results indicated that the two ERE training groups scored below the third percentile for beginning first graders.

Analysis of variance of the Family Functioning Instrument pretest scores indicated that the four groups did not differ significantly in family functioning (p > .05, two tailed).

In summary, analysis of pretest data indicated that (1) IQ differences between the ERE groups were insignificant while small but significant differences in IQ favoring the regular social service groups were present and statistically significant, (2) the two ERE groups were equivalent and quite low in reading readiness, and (3) the four groups were homogeneous in terms of social maturity and family functioning.

Analyses of Treatment Effects

Mean differences between the pre- and posttest (i.e., change scores) on the Stanford-Binet for the four groups appear in Table 1 and a summary of the variance analysis on those scores is presented in Table 2. The only variable that significantly increased IQ was the ERE training. The ERE-trained groups made a mean gain of 1.1 IQ points while the control groups had a mean IQ loss of -2.8 IQ points. The variance analysis indicated that the difference was statistically significant (see Table 2).

TABLE 1

Stanford-Binet IQ Changes:
Comparison of Means

			Casework Treatment			
Training Exposure	Total Mean	N	Intensive Mean	N	Regular Mean	N
ERE	1.1	68	0.8	34	1.4	34
Control	-2.8	68	-3.4	34	-2.2	34
Total	-0.9	136	-1.3	68	-0.4	68

TABLE 2

Analysis of Variance of Stanford-Binet IQ Change Scores

Source of Variance	Degrees of Freedom	Mean Square	F	p
Social Work	1	25.60	0.25	N.S.
Training	1	516.36	5.06	<.025 (one tailed)
Interaction	1	3.24	0.03	N.S.
Error	132	102.09		
Total	135			

Peabody Picture Vocabulary tests were administered only after completion of the project; consequently a change score analysis was not possible. However, since the Peabody and the Stanford-Binet purport to measure similar abilities, the Peabody posttest scores were adjusted for initial IQ differences measured by the Binet. Analysis of covariance provided the adjustment and tests of the program effects. Table 3 summarizes the adjusted group posttest Peabody means while Table 4 presents the covariance analysis.

TABLE 3

Peabody Posttest Scores: Comparison of Adjusted Means

			Casework Treatment			
Training Exposure	Total Mean	Total N	Intensive Mean	Intensive N	Regular Mean	Regular N
ERE	70.2	64	73.8	32	66.7	32
Control	63.5	64	67.1	32	59.9	32
Total	66.9	128	70.4	64	63.3	64

TABLE 4

Analysis of Covariance of Peabody Posttest Scores
Adjusted for the Effect of Pretest Binet IQ Scores

Source of Variance	Degrees of Freedom	Mean Square	F	p
Social Work	1	1634.46	4.88	<.025 (one tailed)
Training	1	1433.74	4.28	<.025 (one tailed)
Interaction	1	0.24	0.00	N.S.
Error	123	334.95		
Total	126			

Covariance analysis of the adjusted Peabody posttest scores indicated that the main effects of training and of social work, but not their interaction, were statistically significant (Table 4). ERE-trained groups had higher scores than the control groups, and groups receiving intensive social work had greater gains than those receiving regular social work.

All of the children were administered the Metropolitan Readiness Test at the end of the program. Since only a sample of the children were administered the test prior to the beginning of the project, a change score analysis was not possible. Inspection of the posttest data, however, indicated that very small differences in the children's pretest Binet IQ scores appeared to influence the posttest Metropolitan scores. Analysis of covariance was therefore used to eliminate the influence of pretest IQ differences on the posttest Metropolitan scores.

The adjusted Metropolitan posttest means are presented in Table 5 while Table 6 summarizes the analysis of covariance on those scores. As with the Peabody scores, the covariance analysis indicated that ERE training, and intensity of social work, but not their interaction, were statistically significant. Regardless of the intensity of the social work, ERE training was more effective than no training and regardless of whether the groups were trained, intensive social work was more effective than regular social work.

TABLE 5

Metropolitan Posttest Scores: Comparison of Adjusted Means

Training Exposure	Total Mean	Total N	Casework Treatment Intensive Mean	N	Regular Mean	N
ERE	24.0	68	26.0	34	22.0	34
Control	19.8	68	20.3	34	19.3	34
Total	21.9	136	23.2	68	20.6	68

TABLE 6

Analysis of Covariance of Metropolitan Scores Adjusted for the Effect of Pretest Binet IQ Scores

Source of Variance	Degrees of Freedom	Mean Square	F	p
Social Work	1	213.87	3.46	<.05 (one tailed)
Training	1	597.92	9.68	<.0025 (one tailed)
Interaction	1	75.27	1.22	N.S.
Error	131	61.79		
Total	134			

Change scores on the Vineland Social Maturity Scale adjusted for Stanford-Binet IQ differences appear in Table 7. As shown in Table 8 covariance analysis of those scores, with pretest Stanford-Binet IQ as the covariate, indicated that none of the treatment variables had any significant effect on social maturity.

TABLE 7

Vineland Social Maturity Change Scores:
Comparison of Adjusted Means

Training Exposure	Total Mean	Total N	Casework Treatment Intensive Mean	Intensive N	Regular Mean	Regular N
ERE	0.8	62	0.5	31	1.0	31
Control	0.7	62	0.6	31	0.7	31
Total	0.7	124	0.6	62	0.9	62

TABLE 8

Analysis of Covariance of Vineland Change Scores
Adjusted for Pretest Binet IQ Differences

Source of Variance	Degrees of Freedom	Mean Square	F	p
Social Work	1	343.14	2.69	N.S.
Training	1	33.23	0.26	N.S.
Interaction	1	162.26	1.27	N.S.
Error	119	127.71		
Total	122			

Change scores on the Family Functioning Instrument and analysis of variance of those scores are summarized respectively in Tables 9 and 10. Neither ERE training nor the ERE training by social service interaction had any significant effect on family functioning. Intensive social service, however, significantly improved family functioning regardless of whether the group was trained or not.

TABLE 9

Family Functioning Instrument Change Scores:
Comparison of Means

			Casework Treatment			
Training Exposure	Total Mean	Total N	Intensive Mean	Intensive N	Regular Mean	Regular N
ERE	0.3	68	0.5	34	0.1	34
Control	0.3	68	0.4	34	0.1	34
Total	0.3	136	0.5	68	0.1	68

TABLE 10

Analysis of Variance of Family
Functioning Instrument Change Scores

Source of Variance	Degrees of Freedom	Mean Square	F	p
Social Work	1	434.18	7.47	<.005 (one tailed)
Training	1	3.89	0.07	N.S.
Interaction	1	20.65	0.36	N.S.
Error	132	58.12		
Total	135			

Conclusions

The description presented in this document was derived entirely from the Project Breakthrough Final Report (Hudson, 1969). The interested reader, however, is referred to that report for a more detailed description of the analysis, results, conclusions, and study limitations. The following conclusions are based upon only those data discussed above.

It appears that ERE training can significantly affect preschool, disadvantaged children's IQ, as measured by the Stanford-Binet, vocabulary as measured by the Peabody, and reading readiness as measured by the Metropolitan Readiness Test. ERE training has little effect, however, on social maturity as measured by the Vineland, or family functioning as measured by the Family Functioning Instrument.

While the educational significance of the small IQ benefit attributable to ERE training is open to question, several issues are worthy of consideration. As the author of the Final Report himself states, "The major importance of ERE training may not be the increase of 1.1 IQ points for the children who received training, but the ability of this training to prevent IQ retrogression among very young children whose parents receive public aid and reside in a socially and economically depleted environment [p. 107]." It must also be noted that the average ERE training time was only 12.7 hours per child over the nine-month duration of the project. IQ gains attributable to the training might have been substantially greater with increased exposure.

Intensive social work appears to have a positive effect on family functioning, vocabulary, and reading readiness but no effect on IQ or social maturity. Also no evidence was found to indicate that social work intensity and ERE training interact. It can therefore be concluded that the effects of ERE training and social work are independent.

SOURCES FOR FURTHER INFORMATION

Personnel

For information concerning Project Breakthrough and the subsequent use of the ten Talking Typewriters in the three elementary schools, the following individuals may be contacted:

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318 West Adams Street
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Miss Jo Anne Tracy, Director
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Equipment

The ten ERE Talking Typewriters used in Project Breakthrough were manufactured by the Thomas A. Edison Laboratories of the McGraw-Edison Company in West Orange, New Jersey.

References

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Moore, O. K. Autotelic responsive environments and exceptional children. In O. J. Harvey (Ed.), *Experience, structure, and adaptability*. New York: Springer, 1966. Pp. 169-216.

PROJECT CONQUEST

EAST ST. LOUIS, ILLINOIS

PROGRAM OVERVIEW

Project Conquest began in 1965 in response to the needs of capable disadvantaged youngsters whose reading problems could not be helped by regular classroom teachers. The three primary objectives of the program were: (1) to raise the reading ability of mentally able disadvantaged children to the point where they could function successfully in regular classrooms, (2) to improve their self-concepts and academic aspirations, and (3) to train regular classroom teachers in remedial reading techniques.

Children who had the potential to read at grade level but were achieving a year or more below grade level were selected for the program. In 1969-70, Project Conquest served 1089 children in four "reading rooms" (grades one, two, and three) and three "reading clinics" (grades four, five, and six). Forty-five minute sessions of remedial reading instruction were offered four days a week at the reading rooms and twice weekly at the reading clinics. These sessions provided (1) individual diagnosis of reading difficulties, (2) prescriptive remedial instruction in small groups, (3) instructional strategies designed to guarantee success, and (4) personal, positive reinforcement to enhance self-concept.

The inservice training component of the project prepared regular classroom teachers to use diagnostic and remedial reading techniques. At the end of a year of inservice training in the reading clinics, the classroom teachers returned to their home schools to help problem readers in their classes and to disseminate what they learned to the school staff.

The staff at the three reading clinics included three supervising teachers, nine teachers-in-training, three teaching aides, and two clerks. The reading rooms which served the lower elementary grades were staffed by nine teachers who had formerly received inservice training at the clinic. Their work was observed by a supervisor who had general charge of all reading rooms and clinics. Three additional supervisors were assigned to the 26 home schools to help teachers of project children set goals which were consistent with diagnosed needs. In addition, through workshops and study groups conducted at the schools, these supervisors helped school staff upgrade reading instruction.

The project was evaluated in terms of its first objective, namely, raising the reading achievement of disadvantaged students who were reading below grade level. The evaluation model used to determine project effectiveness was a pretest-posttest model in which reading achievement gains were compared to test norms. In 1968-69, project evaluation was based on a random sample of 42 out of 1055 students; in 1969-70, 358 students were randomly selected from 987 for evaluation purposes. In both years, reading gains in the reading rooms and clinics were found to be statistically significant. The gains were also considered to be educationally significant since project children gained more than the gain expected of non-disadvantaged children in regular classrooms for a comparable period of time.

PROGRAM DESCRIPTION

Context and Objectives

The children served by Project Conquest live in severely depressed metropolitan neighborhoods of East St. Louis, Illinois. Located across the Mississippi River from St. Louis, East St. Louis is the fifth largest city in Illinois. Less than a century ago, the city was a thriving industrial center as well as one of the largest pork producing areas in the world. Now, however, the packing houses and other industries have left, and East St. Louis is burdened with an over-supply of unskilled labor for the limited jobs available.

In a 1964 survey of cities with populations of 50,000 or more, East St. Louis ranked first in the percentage of families with annual incomes of less than $3000. Mid-1970 demographic data indicated that the city's population had dropped more than 16 percent since the 1960 census, that over 80 percent of its 70,000 inhabitants were black, and that 51 percent of these blacks earned less than $3000 a year at employment which consisted almost entirely of unskilled jobs. Unemployment rates were 20 percent city-wide and 30 percent in the more depressed areas from which Project Conquest participants were drawn. In these areas, over 50 percent of the families received some form of public aid.

An overall decrease in population over the years has been associated with a declining tax base. Classrooms are overcrowded, and over half the district's schools are eligible for Title I funds. A survey of these schools in March 1970 revealed that from 51 to 84 percent of their students met criteria for serious economic and educational disadvantagement. District averages on standardized reading tests have consistently fallen several months below norms. In 1965 a special study of children in ten of the city's most disadvantaged schools revealed they were reading more than a year below grade level. A more recent needs assessment effort by administrative and teaching staff produced a list of two dozen priorities, the top ten of which were divided evenly between language skills deficiencies and social adjustment needs. Beginning in 1965-66, the East St. Louis Title I program has followed guidelines derived from needs assessment data. The program consists of a number of projects, of which Project Conquest is just one.

Project Conquest was established to meet the needs of capable disadvantaged youngsters whose reading problems could not be helped by regular classroom instruction. Specifically, the project was aimed at disadvantaged children in grades one through six who were capable of reading at grade level but who were reading one or more years below grade level. In order to meet the academic and social needs of these children, the project aimed to:

- Raise their reading ability to the point where they could successfully function in their regular classrooms after one year of remedial instruction.
- Improve their self-concepts and school-related aspirations.
- Train classroom teachers full time for one year in remedial reading techniques.

Children who were underachieving in reading by at least one year were recommended by Title I school teachers and principals. Each child was carefully screened by project staff to determine the nature of his language deficiencies and reading-related needs. If the prognosis indicated that remediation might improve the nominee's reading achievement, he was admitted to a special reading room or reading clinic. There, his diagnostic data were used to design a special remediation program which supplemented reading instruction he continued to receive at his home school.

Beginning with one reading clinic which provided diagnosis and remediation to 100 children in 1965-66, the program grew until four reading rooms and three reading clinics were serving 1089 children in 26 public and private Title I schools in 1969-70.

Personnel

Project Conquest personnel consisted of administrative, instructional, clerical, and paraprofessional staff, most of whom served the project full time. The following description applies to duties and qualifications of the 1969-70 staff.

Director. In addition to exercising general supervision over Project Conquest, the director conducted pre-service and inservice workshops for project teachers and aides. Prior to assuming the directorship of Project Conquest, she served the district as a classroom teacher, special reading teacher, and reading supervisor. She had also been a Project Conquest supervising teacher and a supervisor of instruction in the project's reading rooms and clinics. The director held a Master's degree as a reading specialist and had completed additional course work in reading.

Evaluator. Program evaluation was conducted by one of the program staff who held an advanced degree in research methodology.

Supervisors (4). One supervisor was in charge of teachers in the special reading rooms and clinics. She observed their classes and suggested ways for improving instruction. Together with the director, she conducted inservice workshops for the project's instructional personnel and demonstrated remedial reading techniques. The other three supervisors were assigned to the 26 Title I schools served by the project. They worked closely with the regular classroom teachers to insure that the classroom demands made on the project's children were consistent with their clinical diagnoses. In special workshops and planning sessions, the three supervisors demonstrated remedial reading techniques, helped teachers select materials and methods for use with problem readers, and generally assisted Title I schools to upgrade their reading instruction.

The four supervisors held Master's degrees, had completed extra course work in reading instruction, and had been teachers in elementary school classrooms.

Supervising Teachers (3). The three reading clinics (grades four through six) each had one supervising teacher, a permanent member of the reading clinic staff who was responsible for supervising instruction at assigned clinics. In addition to providing inservice training for clinic teachers and screening children for admission to the clinics, the supervising teachers prepared reports for home schools and for the project supervisor. The supervising teachers held teaching credentials and had classroom and project teaching experience.

Clinic Teachers (9). These teachers staffed the three reading clinics, three to a clinic, as part of the project's one-year inservice training program in diagnosis and remedial techniques. After their year as clinic teachers, they either returned to their home schools or they filled vacancies which occurred in the project's permanent reading room staff. The teachers, closely guided by each clinic's supervising teacher, provided specialized remedial instruction to children in grades four, five, and six. The clinic teachers were certified classroom teachers with elementary school experience.

Reading Room Teachers (9). These teachers were required to spend one year in service in the clinics before joining the permanent reading rooms staff. Their qualifications and experience prior to joining the project were similar to those of clinic teachers. The nine teachers staffed four reading rooms, about two teachers to each room. For project children in grades one, two, and three, they provided remedial reading instruction based on needs identified by in-depth clinical diagnoses. Besides their teaching duties, the reading room teachers assisted in administering diagnostic tests and participated in regular meetings of reading room staff.

Teacher Aides (3). One teacher aide was assigned to each clinic to help free teachers for instruction. The aides lived in the community served by the project and were sympathetic to the project's goals. They received inservice training along with the clinic teachers, even though they did not assume instructional roles. Aides had earned at least 30 hours of college credits and were employees of the Economic Opportunity Commission.

School-Community Aides (3, three days a week). As members of the community who volunteered to serve the project without charge, the aides were able to establish rapport with parents, to help them understand project goals, and to encourage them to help meet the child's reading-related needs at home.

Clerical staff (3). Two clerks performed duties assigned by the supervising teachers at the three reading clinics. The third clerk served the director and supervisors.

Project children also received hearing, vision, dental, and physical examinations. These were provided by nurses who served all Title I projects and by doctors who were called in as needed. A school psychologist employed by the district counseled children with social adjustment problems upon referral by the project.

Methodology

Project Conquest had two complementary components, remedial reading instruction and inservice remedial reading training for classroom teachers. These components and related activities are described below.

Remedial reading instruction. Depending on their grade level, project children received diagnosis and remediation at one of four reading rooms (grades one through three) or one of three reading clinics (grades four through six). Remedial instruction was provided in 45-minute sessions held four days a week at the reading rooms and twice weekly at the reading clinics. Reading rooms and clinics were similar in that they provided (1) extensive diagnosis of each child's reading-related problems, (2) techniques and materials tailored to meet each child's diagnosed needs, (3) remediation either individually, or most often, in groups of six children and one teacher, (4) an experience carefully structured so that the student rarely, if ever, failed to attain his objectives, and (5) a warm, one-to-one relationship with the children, using an abundance of praise and encouragement to enhance self-esteem. They also both used the same selection and release criteria. Children were selected on the basis of their failure to read at their potential or grade level, and they were released when they reached one of these established goals.

The reading rooms and clinics differed mainly in the grade levels they served, their service schedules, and their training and supervision of teachers. These aspects are discussed below in connection with more detailed descriptions of methodology.

Remedial instruction in the reading clinics. The three clinics were diagnostic and remediation centers for selected children in grades four, five, and six. Each clinic was staffed by one supervising teacher and three teachers. The supervising teacher at each clinic was a permanent member of the project staff. The teachers, however, were regular classroom teachers who were selected for one year of full-time inservice training in remedial reading techniques. Each teacher taught five 45-minute periods Monday through Thursday, meeting with six children per period. Each child received two periods of remediation at his assigned clinic every week. Fridays were reserved for visitation and coordination with the regular classroom teachers and for afternoon inservice training.

Diagnosis and remediation procedures at each of the three clinics were the same. After in-depth clinical screening which helped to define the precise nature of a child's reading disability, the supervising teacher and inservice staff met to devise a remediation plan based on diagnostic data. Attainable goals were assured at the outset by starting each child on tasks and materials geared about one year below his tested reading level. In this way, the child could see his reading progress and could derive encouragement from initial success in an area he previously associated with failure.

The teachers applied their newly acquired remedial skills as they taught the clinic children under the close guidance of the supervising teacher. Early in the year, instruction was often provided on an individual basis. As the children acquired word-perception skills, the transition to small-group instruction was made. The clinic teachers and the supervising teacher selected materials and equipment for each child according to the individual remedial instruction program which had been planned for him. These materials and devices were different from those provided in regular classrooms, and most could be adjusted to exactly match the student's reading rate and comprehension levels.

Remedial instruction in the reading rooms. Children who required remediation in grades one through three attended 45-minute sessions four days a week in the reading rooms. Each of the reading room teachers had completed one year of inservice training in the reading clinics. Approximately two teachers staffed each of the four reading rooms. Their instruction was observed and guided by one supervisor who divided her time among the four reading rooms. Teachers employed basically the same diagnostic and remedial procedures in the reading rooms that they had been trained to use at the clinics. Many of the materials and audiovisual reading aids used in the reading clinics were also used in the reading rooms. However, unlike the reading clinics which used special basal readers, the reading rooms used the same basal readers that were used in the classrooms.

If a child could not demonstrate that he was ready to return to his regular class by grade four, he was transferred to a reading clinic for continued remediation.

Self-concept. Special techniques were used in reading rooms and clinics to build the child's confidence, to encourage him to adjust to the demands of school, and to raise his level of aspiration. Teachers adjusted instructional demands to insure success, they established close rapport with each child, and they provided frequent opportunities for each child to demonstrate his progress and to be praised for his reading achievements.

During the child's year in the special remedial program, coordination between project and classroom activities was maintained. The three supervisors assigned to the home schools helped teachers set realistic goals and select materials at appropriate difficulty levels for regular reading instruction of children in the program. As the child progressed at the clinic, the supervisor assisted the teacher in selecting more advanced materials which would allow him to demonstrate his reading achievement in class.

In summary, classroom activities were closely coordinated with activities in reading rooms and clinics so that each child had many opportunities to demonstrate progress. By providing a supportive atmosphere for remedial and regular reading instruction, it was hoped that these children would develop self-esteem in regard to their reading skills and, encouraged by their progress, would be motivated to adjust to the demands of school.

Inservice training. Classroom teachers without special training in remedial reading techniques were trained for a one-year period in the course of their service as reading clinic teachers. The aims of this training program were twofold -- to prepare some of the teachers for openings in reading rooms, and to equip them to use and disseminate remedial techniques when they returned to their schools.

Training was initiated in a pre-service workshop held two weeks before school opened. Full-day sessions focused on diagnostic and remedial techniques, methods of establishing rapport and enhancing self-confidence, and materials and equipment used in remediation activities. Diagnostic and remedial techniques were demonstrated by the director and a supervising teacher from one of the reading clinics. Background provided by the two week orientation prepared teachers for more detailed inservice training after they assumed their duties as clinic teachers.

Two weeks after school began, but before students were admitted to the program, joint training sessions were held for teacher aides and teachers. These sessions were taught by the project director. Training emphasized the use of diagnostic and remedial materials. Once students were admitted for service, the clinic teachers began to apply the remedial techniques and skills to which they had been introduced, and were guided by the supervising teacher at each clinic.

Joint inservice meetings for all reading personnel continued on a weekly basis throughout the year. At these meetings, teachers received further training in diagnostic and remedial procedures, participated in critiques of videotape recordings of clinic activities, studied current remedial methods and materials, and discussed clinic strategies with reading experts who occasionally attended inservice sessions.

Another inservice activity consisted of formal and informal training of regular classroom teachers at the home schools. The three supervisors assigned to coordinate the project with these schools helped teachers to diagnose reading problems and to develop remedial instruction for their slow readers.

Parent involvement. Parents were urged to show an interest in the child's reading progress and to provide a home environment which would motivate him to participate fully in remedial reading activities. Parents were also encouraged to attend special orientation meetings and to observe classes at the reading rooms and clinics. Consultations between parents and project instructional staff were held regularly to discuss progress and needs of the children. Further contact with parents was provided through home visits by volunteer school-community aides. During their visits the aides helped parents to understand the goals of the project, the reading-related needs of their children, and the necessity to help their children aspire to higher levels of achievement.

Materials and equipment. The project used a wide variety of commercially available materials and equipment. Each item was carefully reviewed by the entire project staff prior to purchase. Most of the materials were used in both the reading clinics and the reading rooms; a selected sample follows.

Materials/Equipment:	Publisher/Manufacturer:
Conquests in Reading	McGraw-Hill
Magic World of Dr. Spello	McGraw-Hill
Programmed Reading Series	McGraw-Hill
New Reading Skill Series	Charles E. Merrill
Reading Skill Builders	Readers Digest
Classroom Reading Clinic Kit	Webster
SRA Reading Lab	Science Research Associates
Dolch letter and word games	Garrard
Language Master	Bell & Howell
Tachistoscope	various
Listening Lab	various
Controlled Reader	Educational Development Lab.
Shadowscope Reading Pacer	Psychotechnics, Inc.

Facilities. Little or no modification of existing school facilities was required. Three of the four reading rooms were relocatable classroom units built especially for the project. Each unit included areas designed for small-group instruction and for independent study. These units were separate buildings on the grounds of three elementary schools. The fourth reading room was contained within a reading clinic at one of the elementary schools. With this exception, two out of three reading clinics were situated outside of, but near the elementary schools. The clinic facilities also were designed to facilitate individualized instruction and included carrels and independent study areas.

Schedule. Typical schedules for reading room and clinic instruction are presented below.

A Reading Room Period (grades one through three):

Phonics -- 10 minutes
Basal textbook -- 15 minutes
Programmed reading -- 10 minutes
Oral reading, or word games, or work on special devices such as the Controlled Reader -- 10 minutes

A Reading Clinic Period (grades four through six):

Programmed reading -- 5 minutes
Basal textbook (i.e., Conquests in Reading and related activities in Dr. Spello) -- 10 minutes
Dictation -- 10 minutes
Oral reading, or sight vocabulary games, or work on special devices such as the Shadowscope Reading Pacer -- 10 minutes

Budget

The 1969-70 Project Conquest budget is reproduced below.

Salaries	$ 249,105
Materials	5,350
Operating Costs	4,968
Fixed Charges	27,101
Total Budget	$ 286,524

Based on the 1089 children served during 1969-70, the per-pupil cost of Project Conquest was $263 above the district's normal per-pupil cost of about $585 during the same year. The three relocatable classrooms were provided as reading rooms in 1968-69 for a capital outlay of $42,000, and classroom furniture was purchased the same year for $3,000. Neither of these expenses recurred in 1969-70.

Costs of replication would vary considerably depending on the character of facilities, availability of volunteer school-community aides, provision for program administration by district personnel instead of program-supported personnel, salary schedules for teachers, etc.

EVALUATION

Project Conquest's primary objectives were (1) to raise the reading ability of educationally disadvantaged children so that they can function successfully in their regular classrooms, (2) to improve the self-concept of disadvantaged children with reading disabilities, and (3) to train classroom teachers in remedial reading techniques. Since the program's first formal evaluation, completed in 1969, evaluation activity has focused on the first of the above objectives, namely, determination of reading achievement gains made by the project's students after one academic year of remedial reading. The model consistently employed for evaluation was a simple pretest-posttest model with standardized test norms used for comparative purposes. The following section will summarize the results of the 1968-69 and 1969-70 Project Conquest evaluations (Spann & Weber, 1969; 1970).

Reading Achievement, 1968-69

During the 1968-69 academic year, Project Conquest served over 1250 disadvantaged children with reading disabilities in three reading clinics (grades four, five, and six) and five reading rooms (first, second, and third grades). Complete Gates Reading Survey pretest and posttest data were collected on 1055 students. A random sample of 42 students from those with complete data was selected for evaluation purposes.

The time elapsing between the alternate form administration of the Gates Reading Survey was seven and one-half months. During that time period "average," non-disadvantaged children without reading disabilities would be expected to make a seven and one-half month gain in reading achievement (i.e., .75 grade-equivalent units gain). Any gain greater than that may be considered an educationally significant gain.

The pretest-posttest difference scores for the 42 evaluation sample children were calculated and a t test for repeated measures was used to test the statistical significance of the mean difference. The sample's grade-equivalent mean gain of .94 was found to be statistically significant ($p < .025$, one tailed t test). Since the gain demonstrated by the program's children exceeded the expected gain for average children during a corresponding period in a regular classroom, it can be considered educationally as well as statistically significant.

On the basis of the reading achievement gain scores demonstrated by a sample of children from both reading rooms and clinics, it can be concluded that Project Conquest was successful in improving the reading achievement of the pupils it served. The achievement gains manifested by the program's children were both educationally and statistically significant.

Reading Achievement, 1969-70[1]

A larger scale and more extensive analysis of Project Conquest was conducted the following academic year. During 1969-70 three clinics and four reading rooms served more than 1089 disadvantaged students. Of the 987 children who were present for pre- and posttesting, a random sample of 358 was selected for evaluation purposes.

The Gates Primary Reading Test, the Gates Advanced Primary Reading Test, or the Gates Reading Survey were administered to the project's students as the pretest in September of 1969. The comparable Gates-MacGinitie Reading Test was administered as the posttest in May, 1970. The Gates-MacGinitie is the replacement test for the older Gates Tests. Pretest and posttest scores were made comparable by conversion of the Gates pretest scores to their Gates-MacGinitie equivalents via the equi-percentile method.

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[1] The data reported here are slightly different from those reported in the 1969-70 evaluation report since some reanalysis was undertaken. The conclusions reached by both analyses, however, are identical.

Prior to analysis of the specific reading achievement gains made by the different reading rooms and clinics, an attempt was made to determine if the gains made by the various clinics and reading rooms were similar. Analyses of variance on gain scores were computed separately for the reading rooms and the reading clinics. The reading rooms analysis indicated that the differences in the mean gains made in the various rooms were not significantly different. The same conclusion was reached on the basis of the clinics analysis.

The mean grade-equivalent gains made by the various reading rooms are summarized in Table 1. The reading achievement gains made by each reading room were found to be statistically significant. Those gains can also be considered educationally significant since they were greater than the .75 grade-equivalent unit gain expected of average children during a comparable period in a regular classroom.

TABLE 1

Mean Reading Achievement Gains Made by the Reading Room Students (1969-70)

Reading Room	N	Pretest	Posttest	Gain
I	17	2.02	2.79	.77*
II	24	2.13	2.95	.82**
III	24	1.61	2.76	1.15**
IV	22	1.29	2.33	1.04**

* $p < .05$, one tailed $\underline{t}$ test
** $p < .01$, one tailed $\underline{t}$ test

The mean gain scores made by the children in the three reading clinics are summarized in Table 2. As with the reading rooms, the gains reported for each clinic were found to be statistically ($p < .01$, one tailed t test) as well as educationally significant.

TABLE 2

Mean Reading Achievement Gains Made by
the Clinic Students (1969-70)

Clinics	N	Pretest	Posttest	Gains
A	110	3.17	4.21	1.04*
B	99	3.35	4.63	1.28*
C	59	3.57	4.37	.80*

* $p < .01$, one tailed t test

To test statistically the educational significance of the gains reported, the mean gain for all clinic and reading room students was computed and compared to the mean expected for average students during the same period of time. The expected mean gain was .75 grade-equivalent units and the project students' gain was 1.04, for a difference of .29 units. A t test of the difference between these means showed the difference to be statistically significant ($p < .01$, one tailed t test). It was therefore concluded that the students in the clinics and reading rooms made reading achievement gains that were significantly greater than that expected by non-disadvantaged children in a regular classroom for a comparable period of time.

For two consecutive program years Project Conquest has been successful in raising the reading achievement of its students. The achievement gains for both academic years were found to be statistically and educationally significant.

MODIFICATIONS AND SUGGESTIONS

The project director suggested that replications of Project Conquest begin with one reading clinic during the first year of operation. During the second year, teachers trained in the clinic would become reading room teachers, and a new group of classroom teachers would begin one year of inservice training as clinic teachers. Gradually, as staff and funds permitted, the number of clinics and reading rooms could be expanded as they were in the case of Project Conquest during the five-year period from 1965-70.

A second suggestion to districts wishing to implement a similar program was that there be an agreement with a local university to provide inservice training for instructional staff. For example, a remedial reading specialist on the university staff could conduct regular inservice meetings for reading room and clinic teachers, and perhaps for classroom teachers. This recommendation was made because adequate inservice training was felt to be particularly crucial to the success of Project Conquest.

SOURCES FOR FURTHER INFORMATION

Personnel

For further information about Project Conquest, contact the following individuals:

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PROJECT MARS

LEOMINSTER, MASSACHUSETTS

PROGRAM OVERVIEW

Project MARS (Make All Reading Serviceable) offered special reading instruction for over 200 public and parochial school disadvantaged children in grades one through four. The primary objective was to raise the reading performance of students to a level consistent with their potential reading ability. The program also aimed to foster academic motivation and favorable attitudes toward reading.

Children served by the program were located in seven target area schools, each of which had a full-time remedial reading teacher. Students were admitted to the program on the basis of three criteria -- standardized reading test results, daily classroom performance, and the evaluation of teachers and principals. Throughout the year, pupils spent 45 minutes daily in the special reading classrooms. Students were released from the program at any time during the school year when staff members determined that they had reached their reading potential.

Project MARS began in 1966-67 in response to the needs of the area's disadvantaged children who were falling below their grade levels in reading achievement. The program's methodology centered on intensive small-group instruction, emphasizing use of materials and techniques other than those used in the regular classroom. This approach, it was felt, could provide more appropriate instruction for children who had experienced only failure with traditional classroom methods.

The project's staff consisted of a project director, seven special reading teachers, and two part-time clerks. A psychologist was also employed as an evaluation consultant.

Evaluation of reading achievement improvement was based on pre- and posttest results on the Word Knowledge and Reading tests of the Metropolitan Achievement Test battery. Test data for academic years 1968-69 and 1969-70 indicated that the program was successful in producing statistically and educationally significant reading achievement gains in second-, third-, and fourth-grade children.

PROGRAM DESCRIPTION

Context and Objectives

Project MARS began five years ago in Leominster, a city of about 31,000 people located in central Massachusetts. Irish, French, and Italian ethnic groups were predominant in the population. More recently, Leominster has had a large influx of Puerto Ricans. The majority of the citizens in the area are employed in the plastics industry which is the town's main source of economic support. The unemployment rate in Leominster is comparable to that of the nation as a whole, and 17 percent of the population receive welfare. In the disadvantaged sector from which program students were drawn, however, the number of parents on welfare totaled 33 percent.

The school system serves approximately 6700 students, in 13 schools -- 10 elementary schools, 2 junior high schools (grades seven through nine), and one senior high school. The schools are well supported, and the district spends approximately $600 per pupil per year at the elementary level.

The MARS program included children in seven elementary schools in designated target areas. Four of these schools were public; three were parochial. The 1969-70 program had 74 children in first grade, 71 in second grade, 42 in third grade, and 25 in fourth grade. In support of the program, ESEA Title I added $300 per child to the district's $600 expenditure to provide a total of $900 per child in Project MARS.

The project, established in 1966-67, was designed to provide special remedial reading instruction for disadvantaged children who were falling below their grade levels in reading achievement. The major emphasis of the program was on early detection and remediation of reading difficulties. The program attempted to prevent the kind of academic achievement problems which often result from lack of adequate reading skills.

Personnel

Project Director (one-fourth time). The project director was responsible for supervising the program, selecting materials, testing and evaluation, and making recommendations for program changes. She had 25 years of classroom teaching experience and was qualified to administer and evaluate the Wechsler and Binet intelligence tests as well as various individual reading tests. She had a Master's degree in the field of reading and 30 advanced credits beyond this level.

School Administrator (part-time, non-salaried under Title I). The school administrator for the program was the administrative assistant to the superintendent of schools. He was involved in only the budgetary aspects of the program.

Special Reading Teachers (7). Each of the four public and three parochial schools participating in the program had one full-time reading teacher who worked in a specifically designated reading area. Their duties included reading instruction, standardized and informal testing, scheduling, and pupil evaluation. They held periodic conferences with the regular classroom teachers, parents of students, and other personnel involved with the program. All seven were experienced classroom teachers prior to joining the program, and all have remained with the program since its beginning.

Clerks (2, part-time). The clerks typed curriculum orders, correspondence, payroll papers, reports, and various informational materials for distribution.

Evaluator (part-time, on a consultant basis). A psychologist from a neighboring college attended several inservice sessions and made a final assessment of the program. He held a Doctor's degree in Education.

Methodology

The objectives of Project MARS were:

- To diagnose specific reading weaknesses and to provide individualized instruction in the areas needed to improve reading performance.
- To strengthen and increase the reading performance of educationally deprived children beyond the confines of the regular classroom.
- To give specific vocabulary practice.
- To help children acquire the habits, attitudes, and skills necessary to be successful in reading and schoolwork in general.
- To strengthen reading skills taught in the regular classroom, enabling disadvantaged children to perform on a level with their peers and maintain a positive self-image.

Standardized test results, daily classroom performance, and teacher and principal evaluations were used in selecting children for the program. Since they were still non-readers, first-grade children were selected from results on the Durrell-Murphy Reading Readiness Test which was administered to all first graders by their classroom teachers on the second day of school. The purpose was to identify children with potential reading difficulties early and prevent more serious difficulties later.

The Project MARS program consisted of special intensive remedial instruction for children who had evidenced reading difficulties. Students were released from their classrooms at definite times for 45 minutes of daily small-group instruction with their special reading teacher. Groups were composed of six or fewer students, and no teacher had more than 30 students during the course of a day. Pupils were not released from recess, art, gym, or music to attend the reading classes. Those who had scheduling difficulties or particularly severe reading problems were taught on a one-to-one basis in half-hour sessions.

Parents were involved in the program through a 27-member parent advisory council and were also invited to visit the schools periodically and to attend conferences with school personnel. At the end of the year, teachers were required to submit detailed reports, anecdotal records, and recommendations for the coming year.

Instructional methods and materials other than those regularly found in the classroom were used exclusively in the program in order to sustain the interest of children who had been unsuccessful in the traditional situation. Teachers were urged to be creative and to adapt their methods to the child's mode of learning. Immediate feedback and correction took place in all phases of reading instruction. The atmosphere of the sessions was informal, and the small-group structure was designed to allow maximum opportunity for experimentation. Each teacher used whatever method worked best for her.

Materials. Teachers were free to choose whatever resources they found most useful from a wide range of learning materials available to the program. These included the following:

Examples of Materials:	Publisher/Manufacturer:
All Dolch materials	Garrard Press
I Can Read books	Garrard Press
Word Wheels	J. L. Hammett
I Can Read books	Behavioral Research Lab
Sullivan Programmed Reading materials	Behavioral Research Lab
Phonetic Reader Series	Educational Publishing Service
Skill Builders	Readers Digest
Easy to Read books	Scholastic Press
Revised Structural Reading Series, A-E	L. W. Singer Co.
Standard Test Lessons in Reading	Teachers College Press
Gates Peardon Reading Exercises	Teachers College Press
Round Table Easy to Read Books	Allyn & Bacon
Happy Times with Sounds	Allyn & Bacon
Websters Reading Clinic Lab	McGraw Hill
New Practice Readers	McGraw Hill
Reading Skill Series, A-D	Charles Merrill
Phonic Skill Texts	Charles Merrill
Fun with Phonics	Kenworthy Educational Co.
Word Blends	Kenworthy Educational Co.
Specific Skill Series	Barnell Loft
Easy to Read Series	Random House
Reluctant Reader books	Random House
Basic Reading Series, revised	Lippincott
Getting Ready to Read	Houghton Mifflin
Introducing English with Spirit Masters	Houghton Mifflin

In addition, numerous games, charts, cards, flannel boards, and manipulative materials were used. A variety of audiovisual equipment was also available. Visual and auditory discrimination training was important in the program, and filmstrips, tapes, and transparencies were used extensively. These included the materials produced by Eye Gate House, Lippincott, and J. L. Hammett Company. Listening skills were also emphasized, and many activities were aimed at stimulating verbal communication, an often underdeveloped skill among the children in the program. Most teachers began each session with a five-minute talk-and-show activity to foster verbal interaction.

Personnel training. During the first two years of the program all teachers participated in weekly inservice team meetings; later, the schedule was changed to only monthly meetings. Area specialists were included in these meetings and some of the topics covered were:

- Interpreting test results
- Comprehension skills
- Phonetic and word analysis skills
- The educationally disadvantaged
- Remedial reading techniques
- Motivation and reading

The teachers all participated in a summer reading institute and were required to do similar work every three years in order to keep abreast of new developments in reading instruction.

Facilities and schedule. The schools in which the program operated were generally older buildings and, in each, a special area was set aside for Project MARS classes. The teachers were free to equip and organize these rooms in accordance with their instructional needs and individual methods. One teacher, for example, had large, colorful pillows on the floor where children could sit for paired practice activities while she worked with one child in another section of the room.

The instructional period was typically divided into three parts: (1) skill development, (2) oral and silent reading, and (3) game time. For each child, instruction was individualized on the basis of his particular reading problems. The reading teacher worked closely with the child's classroom teacher in order to provide instruction relevant to the student's reading needs as evidenced in his classroom work. Reading grades were assigned by the regular classroom teacher after consulting with the reading teacher.

Specific Example of Methodology

Under the Title I program, all teachers in the city were requested to submit one or two remedial reading techniques that they found to be successful in their classrooms. The techniques submitted were reviewed, typed, and bound into a booklet entitled "Reading Recipes in Leominster." Suggestions contributed by teachers in the Project MARS reading program were included in this collection.

Among the activities employed by program teachers to stimulate student interest and provide instructional experiences different from those in the regular classroom was the use of books written by pupils. The teacher typed children's original stories on a primer typewriter. These were then cut, stapled, and bound with pieces of wallpaper. The children were proud of their books and enjoyed sharing them with other students.

Teachers often created their own materials and techniques which, while similar to those used in other classrooms, were "tailor-made" to the needs of program children and designed to be different and appealing to them. For teaching specific skills, many of the teachers made their own "reading labs." These were similar in format to the ones used in the regular classroom, but they contained special exercises devised by the teacher and geared to the student's particular reading level. They were color coded and stored in large cereal boxes which were brightly decorated.

One activity used in visual-perception training was designed to help children who had difficulty learning letter names. Old magazines or newspapers printed in large type were used, and the student drew a circle around his own "troublesome letter" whenever it appeared in either upper- or lower-case form.

A group exercise provided drill in hearing long and short vowel sounds and a chance for physical activity. One student stood in front of the group with a deck of word cards made by the teacher. As he read each word, the rest of the children sat down if it had a long vowel sound and stood up if the vowel sound was short. The last student to sit down, or anyone who sat down at the wrong time, had to stay down, and the last student standing won the game.

Budget

The 1969-70 program budget for Project MARS was as follows:

Teachers' salaries	$ 35,525.00
Administrative salaries	4,060.00
Supplies	923.18
Contracted services (evaluation, etc.)	800.00
Total	$ 41,308.18

Per-pupil cost was approximately $900 per year. The regular district yearly expenditure was $600 per pupil, and the extra $300 for Project MARS students was provided by Title I. Costs of replicating the program would vary in different locations since teachers' salaries, rather than special materials or facilities, constituted most of the expense.

EVALUATION

The primary objective of Project MARS was to provide remedial reading instruction to disadvantaged grade one through four children in an attempt to bring them to a reading achievement level at which they could profit from their regular classroom instruction. Program evaluation was therefore focused on determination of the extent of reading achievement improvement made by Project MARS students after one academic year of remedial reading instruction. The model used to evaluate reading achievement gains was the standard pretest-posttest evaluation model.

No control groups were employed; rather, students' performance was compared to national norms on a standardized reading achievement test.

Since Project MARS evaluation reports did not present evaluation results in the format appropriate for this series, the raw data for academic years 1968-69 and 1969-70 were obtained and reanalyzed by the American Institutes for Research (AIR). The results and conclusions presented here, therefore, do not correspond exactly with those detailed in the Project MARS evaluation reports cited at the end of this description. Differences, however, are due primarily to the more intensive analysis, in a statistical sense, completed by the AIR staff.

The Reading and Word Knowledge tests of the Metropolitan Achievement Tests series were administered to the MARS students as pre-program and post-program tests during both the 1968-69 and 1969-70 academic years. Form C of the tests was administered prior to remediation and Form B at the end of the academic year. During the 1968-69 program year, seven months elapsed between pre- and posttesting, while in 1969-70, only six months passed between test administrations.

1968-69 Reading Achievement

Reading and Word Knowledge mean pretest, posttest, and gain scores for the 1968-69 program year are summarized in Table 1. All scores are expressed in grade-equivalent units. Since the grade one students had minimal entry reading skills, they were not administered the pretest -- only the posttest. However, as indicated in the table, their posttest score was approximately one month greater (i.e., .12 grade-equivalent units) than would be expected of "average" readers at the end of grade one. It appears that the remedial program arrested the reading problems that the grade one students were assumed to be developing on the basis of their pre-program diagnostic tests.

Pretests and posttests were administered at all other grade levels. The mean difference scores were computed for each grade level and the statistical significance of the gain scores was tested with t tests for repeated measures on the same subjects. Table 1 illustrates that the gain scores for grades two, three, and four on both tests reached statistical significance, i.e., the gain scores were found to be significantly different from zero ($p < .01$, one tailed t).

Although the Reading and Word Knowledge gains of the grade-three and four students were statistically significant, gains in Reading could not be considered educationally significant on the basis of comparison to those expected for "average" children during a comparable period of classroom instruction. Since the elapsed time between testings was seven months, the expected "average" gain was .7 grade-equivalent units. Grade-three and four students approached the expected gain in Reading and exceeded the expectation in Word Knowledge. Grade two students exceeded expectations on both tests.

TABLE 1

Reading and Word Knowledge Achievement Scores for the 1968-69 Academic Year

		Metropolitan Achievement Tests					
		Reading			Word Knowledge		
Grade	N	Pre	Post	Gain	Pre	Post	Gain
One	86	-	2.12		-	2.32	
Two	62	1.74	2.85	1.11*	1.92	3.06	1.14*
Three	37	2.82	3.49	.67*	2.71	3.61	.90*
Four	29	3.55	4.06	.51*	3.14	4.48	1.34

* p < .01, one tailed t test

The results of the 1968-69 academic year suggest that the MARS project was successful in producing cognitive achievement benefits that were statistically significant and which, with the exception of grade three and grade four Reading test gains, exceeded the gains expected of average children in regular classrooms.

1969-70 Reading Achievement

Similar data for the 1969-70 program year are presented in Table 2 (unlike 1968-69, no data were available for first-grade students). Again, the scores in the table are in grade-equivalent units. The time between pre- and posttesting was six months. On the basis of the elapsed time between testing, any gain greater than .6 grade-equivalent units can be considered an educationally significant gain.

As Table 2 indicates, Project MARS was about equally successful during the 1969-70 academic year as it was in 1968-69. Statistical analysis indicated that all gain scores except grade two Word Knowledge were significant (p < .01, one tailed t test). Also, all but one of the statistically significant gains exceeded the expected six months and therefore can be considered educationally significant.

TABLE 2

Reading and Word Knowledge Achievement Scores for the 1969-70 Academic Year

		Metropolitan Achievement Tests					
		Reading			Word Knowledge		
Grade	N	Pre	Post	Gain	Pre	Post	Gain
Two	66	1.97	2.66	.69*	1.99	2.72	.73
Three	36	2.90	3.71	.81*	2.90	3.85	.95*
Four	18	3.33	4.36	1.03*	3.52	4.06	.54*

* $p < .01$, one tailed _t_ test

In summary, reading achievement test scores during the 1968-69 and 1969-70 academic years indicated that Project MARS' second-, third-, and fourth-grade students made gains in Word Knowledge and Reading achievement test scores which (with but few exceptions) were both statistically and educationally significant.

SOURCES FOR FURTHER INFORMATION

Personnel

For information concerning Project MARS, the following individuals may be contacted:

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PS 115 ALPHA ONE READING PROGRAM

NEW YORK, NEW YORK

PROGRAM OVERVIEW

During Public School (PS) 115's 1969-70 academic year a first-grade class of 27 disadvantaged, inner-city youngsters received a special language arts program entitled "Alpha One." Alpha One is a commercially available, initial reading program designed to (1) teach first-grade children to read and write sentences containing words of one, two, and three syllables, and (2) develop and strengthen the child's self-esteem in terms of his language skills achievement.

A control class of comparable first graders, instructed by an equally qualified and experienced teacher, used the school's regular reading program -- the Stern Structural Reading Program. Both programs were selected to meet the special needs of the PS 115 youngsters, many of whom could not speak fluent English when they enrolled in school. The two classes used their respective reading program for three 40-minute periods a day throughout the school year.

Alpha One's game-like approach capitalized upon the child's sense of fun and imagination to develop interest in learning to read and spell. Learning letter symbols and sounds, mastering rules of word formation, and reading and writing are byproducts of the interaction between the child and his 26 "Letter People" friends, his participation in creative and dramatic play, his enjoyment of activities associated with specially developed filmstrips and recorded stories and rhymes, and his programmed success in a variety of visual and auditory discrimination "Letter People" games.

At the end of the academic year, the two groups were compared on the Sentence Reading and Word Recognition subtests of the Gates Primary Reading Test. The Alpha One group scored .74 grade-equivalent points higher in Sentence Reading and .57 grade-equivalent points higher in Word Recognition than did the Stern Group. These differences were found to be statistically significant. In terms of educational significance, at the end of the first grade, the Alpha One group was reading at better than the mid-second-grade level, while the Stern group was reading at about the norm.

The Gates Oral Reading Test was used to follow up a small but representative sample of the Alpha One children midway through second grade. Results indicated that the former Alpha One students were reading at fourth-grade level, or about 1.5 years above expectancy for non-disadvantaged children. It was therefore concluded that the rate of reading achievement growth displayed by the Alpha One children at the end of the first grade increased during the second grade, without the aid of further Alpha One instruction.

PROGRAM DESCRIPTION

Context and Objectives

PS 115 is located in a racially mixed inner-city ghetto neighborhood of Manhattan. The school is housed in a 60-year-old, previously closed junior high school that was reopened as an elementary school in 1966, due to the pressing need for elementary classrooms. The 1966 enrollment was approximately 600. By 1971, the school's enrollment had more than doubled to serve approximately 1400 students. The student body is constantly in flux, with approximately 1000 children entering and leaving the school every year.

In association with local colleges, the school participates in several experimental education programs. The local colleges also send many student teachers to the school where their instructional techniques are reviewed by regular classroom teachers.

About 60 percent of the families in the neighborhood are on welfare, and nearly all the students in the school receive free lunches. The children are mostly of Dominican, Cuban, Puerto Rican, and Greek descent. When the school opened, many children in the lower elementary grades could not read or speak English. Added to this liability was an inexperienced teaching staff. The school therefore adopted the Stern Structural Reading Program, reasoning that its highly organized content and carefully prescribed methodology would be best suited to the combined needs of students and staff. Satisfied with the results produced by the Stern materials, but interested in innovation, the school's principal decided to pilot test the Alpha One reading program in one first-grade classroom during the 1969-70 academic year.

Alpha One, a one-year language arts program for first graders, was developed by two elementary school teachers several years ago. The Alpha One program has been commercially available in kit form since 1969. The primary objectives of the program are (1) development of competency in listening, spelling, writing, and reading skills, and (2) development and strengthening of the child's self-esteem in his language skills achievement.

Personnel

Alpha One classroom instruction was entirely the responsibility of one full-time teacher. The teacher of the Stern class had the additional assistance of a paraprofessional teacher aide for three hours a day. The teachers in both classes had comparable training and experience. Both were State-certified, had passed the New York City Teacher Examination, held Master's degrees, and had approximately three years of teaching experience prior to 1969-70.

Methodology

Specific objectives. As indicated earlier, Alpha One's broad objectives are to develop language skills and to enhance the child's self-esteem in his language skills achievement. More specifically, Alpha One children are expected to be able to read and write sentences containing words of one, two, and three syllables by the end of the one-year program.

The Alpha One reading curriculum is divided into three instructional modules. Specific objectives are associated with each of the three modules. The first module deals with the introduction of individual letters of the alphabet and focuses on the development of:

- recognition of the letter shape and sound
- oral reproduction of the letter sound
- written reproduction of the letter symbol
- association of the written symbol with the sound
- recognition of the written symbol in isolation and in words
- reading and spelling regular one-syllable words having a short vowel
- introduction of blends and special letter combinations
- alphabetization

The second module focuses on specific decoding and spelling skills, such as:

- division of vowels and consonants
- introduction of long vowels
- differentiation of long and short vowel sounds
- words that end with a long vowel sound
- silent e
- adjacent vowels
- control of vowels
- suffix ing
- special sounds: sh, ch, th, wh
- irregular sight words ("runaways")
- distinction between c and k
- y as a consonant and a vowel
- soft c and g
- special vowel sounds: ou, oi, oo, au.

The third module deals with decoding polysyllabic words. It provides the child with a practical means of attacking longer words.

Activities. To accomplish its objectives, Alpha One uses a game-like phonics approach to decoding words. Heavy reliance is placed on the child's sense of fun and imagination to gain his involvement in learning to read and spell. The highly structured, carefully sequenced lessons are comprised of rhymes, humorous experiences, stories, and games.

The children are first introduced to the alphabet through 26 "Letter People" -- 5 are girls (vowels) and 21 are boys (consonants). Each Letter Person is endowed with a memorable, alliterative characteristic which is associated with his letter sound. For example, Mr. M gets his sound from his "munching mouth," Mr. H gets his sound from his "horrible hair," and Mr. B get his from his "beautiful buttons." Miss A is known by her "a-choo" and Miss I suffers from a terrible "itch." Later, the children learn that the long sounds of the vowels are the same as their letter names.

Letters of the alphabet are introduced to the children one at a time, using procedures which incorporate special Alpha One materials (Letter People Placards, Letter Meeting Greeting Cards, Alphabet Sheets, Chatterbooks) and activities. These materials and methods are most easily described in connection with a lesson. For example, the first of four lessons on the letter T begins by telling the children they are about to meet a new Letter Person who needs an extra large toothbrush. A picture of an enormous toothbrush is sketched on the chalkboard. After the children speculate about the need for the huge toothbrush, Letter Meeting Greeting Cards are distributed and a large Letter Person Placard for Mr. T is displayed. Both the individual cards and the large placard depict a cartoon of Mr. T showing his unusually "tall teeth." The children compare Mr. T's teeth to their own. (Mr. T's teeth are bigger. Mr. T's teeth take longer to brush. Mr. T's toothbrush would wear out first.) The children then compare the large cartoon placard of Mr. T with the cartoon replica on their own cards. The child's card depicts Mr. T with part of his body missing, in the outline of the letter T. The display placard, however, shows the complete cartoon with the letter T in bright red-orange. Discussion leads the children to discover that the part of Mr. T's body which is missing on their cards is the letter itself.

At this point, the Alphabet Sheets are distributed. The children rub their fingers over the outlined space for the letter T on their cards and describe its shape. (It goes up and down; it has straight lines, points, etc.) Then they look on their Alphabet Sheet for the letter that conforms to the outline on their card. As each child finds T he peels it off his adhesive-backed Alphabet Sheet and sticks it on his card, fitting the letter over the outline of Mr. T's missing part (letter).

Each child is then given an opportunity to say "tall teeth," stressing the alliterative "t" sound, and to think of other words which begin with Mr. T's sound. For such activities, each child may use his own Chatterbook, a special Alpha One activity book in which exercises begin with recognition of letters and their sounds and grow increasingly complex as the child learns to decode words and to read illustrated sentences. Chatterbook activities for the lessons on Mr. T include coloring objects or checking pictures of objects which begin with Mr. T's sound, listening to the initial sound of words read aloud by the teacher and deciding if the word begins with Mr. T's sound, and so on. Chalkboard writing by a volunteer demonstrates how capital T is written. The rest of the children practice writing T at their seats. Recognition and writing of small t proceeds as for big T. The first lesson on Mr. T concludes by eliciting the following observations from the children: "Mr. T has tall teeth. Mr. T gets his sound from tall teeth. Many objects start with the sound for T." Follow-on activities include drawing objects which begin with Mr. T's sound, drawing pictures of Mr. T brushing his tall teeth, collecting pictures of teeth and toothbrushes in individually kept notebooks, and accumulating objects beginning with T which are placed in Mr. T's special bag.

After all the Letter People have been introduced, Story Pictures (26 in all) are introduced. Each picture depicts the Letter People in action and deals with different instructional content, e.g., division of vowels and consonants; long vowels; sounds for c and k; soft c and g; special vowel sounds such as oi, oo, ow; etc. Short poems and longer stories accompany each Story Picture. Children are not asked to memorize rules of word formation. Instead, the stories and poems depict how the Letter People work together to form syllables and words.

Once the child learns Letter People sounds, he discovers that any answer he can "prove," is acceptable. He need no longer be concerned with one right answer. For example, a child is asked what Letter Person he hears starting the word "man." The child responding correctly with "Mr. M" is told to "prove it" to the Letter Person. ("Mr. M starts man -- man -- munching mouth.") The child responding incorrectly with "Mr. N" would recognize his own error in the proving process. ("Mr. N starts man -- man -- noisy noise -- oh, the Letter Person tricked me!") The child is allowed to try the proving process as many times as needed until he associates the proper Letter Person (Mr. M) with the beginning sound in "man."

Every attempt is made to make the Letter People "come alive" for the children. A child may ask a Letter Person for a drink, and the Letter Person lets him go when he hears the child say his special sound. ("Mr. V, vitamin starts like your velvet vest. May I get a drink?") At snack time, children offer to share with a Letter Person. Children may take a Letter Person to the library, gym, or park, where they get books for Mr. B, run with Mr. R, jump with Mr. J, and so on.

Other activities used to reinforce Alpha One lessons include dramatic play and child-operated puppets. A pink hand-puppet is normally used for role playing the little girl vowels and a blue "boy" hand-puppet is provided for acting out the consonants. Stories may be viewed on filmstrips which are included in the Alpha One kit. Additional stories and rhymes may be listened to on the long-playing phonograph record (Chatter Album). Individual chalk slates are used extensively during large group exercises.

No special textbooks are required for use in conjunction with the Alpha One kit. During the 1969-70 tryout described here, the children were encouraged to read anything they wanted to, regardless of difficulty level, including magazines, newspapers, and books. Any reading material that interests the child can be used in conjunction with Alpha One materials. (Alpha One "readers" will be available for the 1971-72 school year.)

Instruction is individualized and monitored on the basis of weekly tests provided on 50 Duplicating Masters which are included in the kit. These tests, designed to evaluate specific lesson content, begin with simple identifications directed by the teacher and become progressively more difficult. The last three tests involve reading paragraphs and writing answers to questions. By this time the children read the directions without help from the teacher.

No special inservice training is provided in conjunction with Alpha One, nor is it felt to be necessary as long as the teacher follows the carefully prescribed lesson plans in the Alpha One Professional Guide. In the beginning, there is an individual lesson for each skill. Later units combine several skills into one lesson. Each lesson of each unit is organized so that it can be adapted to the teacher's special skills. Suggested dialog for use with children is printed in italics as an aid to teachers using the program for the first time. Each page of the Guide has space reserved for notes, comments or additions. Lesson plans are organized into the following categories:

- Objectives (General and Specific) -- the overall aims of the lesson and the recommended methods by which these general aims are to be specifically realized.
- Materials -- listed in the order in which they will be used.
- Motivation -- recommended means of creating interest that lead into the development of the lesson.
- Development -- typical means of developing a lesson include:
  - (1) Discussion -- child-child, child-teacher.
  - (2) Chalkboard Practice -- spelling from dictation.
  - (3) Chatterbook Activity -- directed and independent activities.
  - (4) Puppet Theater and Dramatization -- suggested plots and scripts related to the lesson.
  - (5) Games -- suggestions for games suitable for large or small groups.
  - (6) Art Activity -- related craft and painting activities.
- Medial Summary (Quick Check) -- a quick means for the teacher to check and survey her class' understanding of the lesson before proceeding.
- Homework or Follow-Up -- suggested activities for homework or for individual follow-up activity.
- Summary -- a means of evaluating what has been learned.
- Enrichment -- suggested activities to be used either with small groups that have special needs or with the whole class.

- Testing and Evaluation -- provides a detailed analysis and instructions for the use of the Duplicating Master to evaluate the students' progress.

Prototypes of lessons which appear most frequently are given in detail at the beginning of the Guide. These include (1) Introducing Letter Meeting Greeting Cards; (2) Written Practice; (3) Chatterbook: Picture Selection, Letter Discrimination, Decoding; (4) Chalkboard Practice; and (5) Reading Sentences for Meaning.

A special section of the Guide contains 30 poems, which are used with lessons in Part Two of the Guide and the accompanying Story Picture. These poems are written in script form, which makes them ideal for dramatics and puppetry. There are also 20 stories about the Letter People which "rationalize their existence and behavior" (e.g., why Miss E gives up her sound at the end of her sisters' words; how Mr. Y became a part-time vowel). Twelve of these are recorded in the long-play Chatter Album.

Additional techniques for building self-esteem. As has already been indicated in the above description of the various Alpha One activities, a great deal of time is invested in making certain that each child knows exactly what is expected of him and in programming experiences to guarantee his success in meeting lesson objectives. In addition, children are continually encouraged to feel proud of their progress. Games and activities allow the teacher flexibility in adjusting the demands made on a child to his individual capabilities. For example, in a game requiring the child to identify objects beginning with the sound of Mr. M, a child who selects a picture of a "tractor" is unobtrusively guided to justify his choice to Mr. M, perhaps by renaming it "machine." Or, if a child responds incorrectly when asked to give the sound of the letter, or when decoding a word, he is never told that he made a mistake. Instead, "Uh oh, Johnny, the Letter Person tricked you..." Johnny is guided to "discover" an acceptable response. The child is gradually conditioned to perform for the Letter People instead of the teacher. He "proves" his responses to the Letter Person, he does not justify his answer to the teacher. "Right" is deemphasized in favor of changing the situation so that a child's best effort produces an appropriate and acceptable response. The justification for spending the time to create a "can't fail" atmosphere for language arts instruction is the assumption that such an atmosphere will help the child develop the courage and confidence to attack any word. Similarly, by substituting the colorful Letter People for 26 hieroglyphs which are traditionally learned by rote, and by endowing the Letter People with human frailties that the children have experienced or can recognize, Alpha One attempts to make language arts instruction appealing and enjoyable.

Daily schedule and classroom layout. During the 1969-70 tryout, three 40-minute periods were devoted to language arts each day in both the Alpha One and the control classes, two periods during the morning and one period in the afternoon. The balance of the day was devoted to the rest of the first-grade curriculum: math, science (twice a week), social studies, physical education, and music (once a week). Some of these classes were taught by special subject-matter teachers. The adult-pupil ratio in the Alpha One class and control class was 1:27, except during the half-day when the teacher aide was present in the control class. The Alpha One class adult-pupil ratio was therefore always 1:27, while the control class ratio was 1:27 half a day, and 2:27 the other half. Except for the different reading programs, the Alpha One and Stern classrooms were typical of first-grade classes. They had similar physical arrangements, materials, and equipment.

Contents of the Alpha One Kit. Nearly all of the following materials have been described in conjunction with explaining the games and activities used during Alpha One lessons. The contents are therefore listed below with little additional explanation:

1. Letter People and Symbol Cards: 26 sturdy placards (14" x 16") each displaying a large cartoon of a Letter Person; 4 Symbol Charts to help decode words.

2. Story Pictures and Easel: 26 scenes illustrated on 19" x 24" placards; the easel is designed to hold both Story Pictures and Letter People.

3. Letter Meeting Greeting Packets and Alphabet Sheets: Each packet contains a pad of 35 Greeting Cards for each of the 26 letters.

4. Chatterbooks: 35 individual activity books for decoding, reading, and spelling words.

5. Puppets and Stage: Scripts, in verse, are also provided.

6. Chalkboards: 35 individual reusable slates to be used for decoding and spelling.

7. Chatter Album: 12", 33 1/3 rpm record which reinforces the learning of the vowel sounds and some of the basic lessons in the program.

8. Filmstrip: Humorous episodes that reinforce identification of letters with personified characteristics.

9. Duplicating Masters: 50 tests to aid the teacher in evaluating student work, and assignments children take home to demonstrate progress to their parents.

10. Professional Guide: A detailed step-by-step lesson plan for each learning unit.

11. Alpha Wagon: A container which houses the above materials, mounted on wheels for portability.

Budget

Costs for the Alpha One tryout in 1969-70, and for its continuation in 1970-71, were paid for out of the regular school budget. In 1969-70, the Alpha One Reading Program cost $250, amounting to the cost of the classroom kit. The Stern Structural Reading Program classroom kit cost $305. Both kits contained materials sufficient for a class of 35.

The estimated life expectancy for the complete Alpha One kit is three years. Three-year costs for the Alpha One and Stern reading programs are shown below.

	Initial Cost Year 1	Recurring Cost Year 2	Recurring Cost Year 3
Alpha One Reading Kit (Serves 35 children)	$ 250	$ 60	$ 60
Stern Structural Reading Kit (Serves 35 children)	$ 305	$ 288	$ 288

As can be inferred from the above estimates, per-pupil costs for a class of 35 are comparable for both Alpha One and Stern reading materials the first year of the program. For the second and third years, however, per-pupil costs for Alpha One are much lower due to the nominal recurring costs for expendable items. Specifically, average cost for three years of Alpha One is $10.57 per pupil and for the Stern Structural Reading Kit it is $25.17 per pupil, based upon classes of 35. Obviously, these per-pupil costs are over and above normal per-pupil costs for the regular school program.

EVALUATION

The Alpha One reading program was introduced into one first-grade classroom at PS 115 in September 1969. The primary objective of the introduction was to compare the effectiveness of Alpha One to the regularly used Stern Structural Reading Program. This was the first formal attempt to evaluate the effectiveness of Alpha One when used with disadvantaged children.

Evaluation was directed by the principal of PS 115, with the assistance of two classroom teachers. Data were collected and collated by the PS 115 evaluation team, then subjected to analysis by the American Institutes for Research. This document represents the only written summary of the evaluation.

Two intact classes were randomly selected from the first grade at PS 115. The Alpha One materials were randomly assigned to one class and the other was assigned the regularly used Stern Structural Reading materials. Two Master's level, State-certified teachers with approximately three years of teaching experience were selected for the classrooms. One of the teachers was introduced to the Alpha One materials and asked to use them with the class assigned that program. On the basis of review of the materials and a discussion with one of the Alpha One developers, the teacher accepted. The other teacher was assigned to the class with the Stern materials. Both teachers were aware that the reading performance of their classes would be compared at the end of the academic year.

In addition to the regular classroom teacher, the control class, but not the Alpha One class, was provided with a half-time (three hours per day) paraprofessional aide. The teaching aide performed clerical and pupil assistance functions typical of teacher aides. The adult to pupil ratio was therefore higher in the control class for one-half of each day than it was in the Alpha One class. The adult-pupil ratio for the Alpha One class was 1:27, while the control class had a ratio of 1:27 for a half day and 2:27 for the remaining half day.

Both classes received three 40-minute language arts periods per day, two periods in the morning and one period in the afternoon. During those periods the assigned reading materials were used as prescribed by the respective teacher guides. In addition to the language arts periods, students in both classes received the usual arithmetic, social studies, science, music, and physical education classes -- in some cases from subject-matter specialists.

Since the two classes used in the evaluation were randomly selected from the first grade in PS 115 and since the same procedures were used to assign children to all the first-grade classes, it was assumed that the children in both of the selected classes were equivalent in entry reading readiness skills. Consequently, a posttest only, control group design was used in the evaluation. It was further assumed, since both classes received the same amount of reading instruction from similarly qualified and experienced teachers, that (with the exception of the additional adult in the control classroom) any differences in the reading achievement of the two classes at the end of the academic year could be attributed to the reading instructional material differences. The Alpha One and the control group were therefore compared on the basis of Sentence Reading and Word Recognition subtest scores of the Gates Primary Reading Test, Form 1, at the end of the academic year.

Table 1 summarizes the results of the evaluation. At the end of the academic year the Alpha One group had a mean grade-equivalent reading achievement score of 2.68 in Sentence Reading and 2.95 in Word Recognition while the comparison group had mean grade-equivalent scores of 1.94 and 2.38 in Sentence Reading and Word Recognition respectively. The Alpha group's mean Sentence Reading score was .74 grade-equivalent units higher than the control group, and their Word Recognition score was .57 grade-equivalent units higher than the comparison group. On the basis of a *t* test for independent groups, it was concluded that the Alpha One posttest means were significantly higher than the control group means on both subtests ($p < .01$, two tailed).

TABLE 1

Summary of Experimental and Control Group Grade-Equivalent Status on Two Subtests of the Gates Primary Reading Test

Evaluation Group	Sentence Reading			Word Recognition		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.
Alpha One	23	2.68	.512	24	2.95	.386
Control	24	1.94	.424	24	2.38	.409
Difference		.74*			.57*	

* $p < .01$, two tailed

An "average" first grade class at the end of the academic year is expected to achieve at the second-grade level, i.e., at 2.0 grade-equivalent units. The disadvantaged students at PS 115 have never quite met that norm. Evaluation results indicate, however, that the control group approached that norm while the Alpha One group exceeded it by .68 and .95 grade-equivalent units in Sentence Reading and Word Recognition respectively. Two plausible explanations for the unusually high achievement of the control group as compared to similarly composed and instructed first-grade classes in PS 115 are (1) the teacher aide in the control class contributed to it, and (2) the control group teacher, being aware that her class' reading achievement was to be compared to that of another class, put in additional effort over and beyond that of the other first-grade teachers.

The reliability of the differences between the control and Alpha One groups, favoring the Alpha One group, is attested to by the statistical analysis. It can be concluded then that the Alpha One program produced higher reading achievement levels at the end of an academic year than those produced with Stern materials. Since the mean grade-equivalent posttest score of the Alpha One group at the end of the academic year was considerably greater than would be expected of non-disadvantaged children at the end of the first grade, it can be concluded that their reading achievement was educationally as well as statistically significant.

During January of 1971, the children that received the Alpha One program the previous year were administered the Gray Oral Reading Test to determine if their unusually high rate of reading achievement (1.34 months per month in Sentence Reading and 1.48 months per month in Word Recognition) at the end of the first grade would continue in the second grade when Alpha One materials were no longer used. Of the 27 children that were in the Alpha One program, 11 were available for a second reading posttest. The other students had either transferred to other schools or were unavailable for testing. Table 2 summarizes the results of the second posttest and the mean grade-equivalent scores for those same students on the original posttest. Comparison of Tables 1 and 2 illustrates the fact that the 11 students given the second posttest scored at approximately the same level or the first posttest as the original total group, i.e., the 11 students given the second posttest were a representative sample of the original Alpha One group.

TABLE 2

Posttest Scores for the Alpha One Students Given the Second Posttest (in Grade-Equivalent Units)

	First Posttest (6/70)		Second Posttest (1/71)
	Gates Primary Reading		
	Sentence Read	Word Recognition	Gray Oral Reading
Mean	2.79	3.08	4.14
Standard Deviation	.42	.31	.89
N	11	11	11

The mean grade-equivalent reading score for those 11 students on the second posttest in January was 4.14. The expected or norm for non-disadvantaged children in January of the second grade is 2.5 in grade-equivalent units. The retested Alpha One group had a mean grade-equivalent achievement of 1.64 units above that expected of non-disadvantaged students tested at the same time. They were reading at the fourth-grade level at mid-second grade. It can be concluded that the rate of reading achievement growth displayed by the Alpha One children at the end of the first grade increased during the second grade, without the further use of Alpha One materials.

In summary, the evaluation demonstrated the effectiveness of Alpha One reading materials when used with disadvantaged children. At the end of the first grade Alpha One children were reading at better than the mid-second-grade level, at mid-second grade they were reading at the fourth-grade level. The Alpha One reading program, although originally designed for non-disadvantaged children, appears to be very effective when used to teach disadvantaged children to read.

MODIFICATIONS AND SUGGESTIONS

The most emphatic suggestion made by the program developers to teachers who plan to use the Alpha One reading materials is to focus on the process. The product -- listening, speaking, reading, and writing skills -- will automatically follow. The process, it has been noted earlier, is delineated in lesson plans contained in the Alpha One Professional Guide. Although the new teacher may feel more secure following the plans to the letter, the Guide encourages the more experienced teacher to use the plans as reference points, embellishing the essential Alpha One process with motivational techniques developed through her unique experience. If there is an Alpha One motto, say the developers, it is, "Make the program live for the children."

Alpha One readers will be available in 1972. The readers have been sequenced so that their stories complement the lessons in the Alpha One series and expand and apply these lessons. The stories concern the Letter People and their humorous, sad, or familiar situations and predicaments. Each story, as in the basic Alpha One program, is accompanied by a step-by-step lesson plan. The teacher's edition of each reader in the series contains behavioral outcomes for each story-lesson and activities by which these outcomes may be validated. The outcomes have to do with word attack skills, word recognition, spelling, vocabulary and language development, comprehension, interpretative skills, and so on.

SOURCES FOR FURTHER INFORMATION

Personnel

For information regarding the Alpha One program at PS 115, contact:

Mr. Lawrence S. Finkel, Principal
PS 115
586 West 177th Street
New York, New York 10033
(212) 795-4758, -4759

For information regarding the development of the Alpha One program, contact:

Mrs. Elayne Reiss
c/o New Dimensions in Education, Inc.
131 Jericho Turnpike
Jericho, New York 11753

Materials

Alpha One: Breaking the Code (the complete classroom kit) may be ordered from:

New Dimensions in Education, Inc.
131 Jericho Turnpike
Jericho, New York 11753

In addition to distributing the Alpha One kits, New Dimensions will also supply films showing the program in action:

"By Gosh She's Got It"
A CBS "60 Minute" Film (not yet broadcast as of this writing)
A "Today Show" Film

REMEDIAL READING LABORATORIES

EL PASO, TEXAS

PROGRAM OVERVIEW

The Remedial Reading Laboratories program in El Paso was designed to improve the reading achievement of disadvantaged students in grades four through twelve and thereby enable them to profit from regular classroom instruction. The program also aimed at improving the students' self-confidence and self-esteem. In 1969-70 Remedial Reading Lab classes were offered to over 1000 disadvantaged students. Selection of students was based on objective criteria defined by specially derived formulas. In general, they were of average intelligence but were nevertheless reading from 1 to 1.5 years below their grade level.

The Remedial Reading Laboratories, supported under Title I since 1965, served pupils from poverty pockets within the city. The majority of the target population served was Mexican-American. Language difficulties often associated with their background complicated the students' reading problems. Remedial labs, located in each of the target area schools, were staffed by special reading teachers. Students were taught in small groups of about eight pupils for 50 to 60 minutes each day.

Classroom procedures were based on the use of individually prescribed instruction. Each teacher was encouraged to adjust the activities and materials she selected to the needs of the students. To help teachers in this process two books, entitled A Diagnostic Approach to Remedial Reading and The Teacher's Source Book, were published and distributed to them. They served as guidebooks for class organization and instructional methodology. In addition to the special reading teachers, program personnel included a consultant, evaluator, counselors, social workers, and nurses.

Evaluation data collected by the program included standardized achievement tests and teacher ratings of student behavior. Standardized test results for the last three years of program evaluation showed that students in the labs made reading achievement gains greater than would be expected of non-disadvantaged children who did not have reading problems. Results of teacher evaluations and follow-up studies of students' grades after leaving the program showed an improvement in attitudes toward self and school, and in ability to handle grade-level subject matter.

PROGRAM DESCRIPTION

Context and Objectives

El Paso is located on the border between the United States and Mexico, on the Rio Grande river directly across from the Mexican city of Juarez. Its population of approximately 400,000 includes many Mexican-Americans, a large proportion of whom are in disadvantaged areas of the city. In 1970 the school district reported that 14 percent of the approximately 65,000 children enrolled in the district came from low income families according to Title I criteria. Of these low income students, 95 percent were Mexican-Americans. Population density of target areas was high, and families moved frequently.

Remedial reading classes in El Paso schools first began in 1963 with a one-school, one-teacher summer program and spread to a few other schools in the following years. The Elementary and Secondary Education Act of 1965 made additional funds available, and in the next five years the program was expanded to a total of 25 schools. The purpose of the project was to identify potentially capable pupils in grades four through twelve who for some reason had been failures, and to give them tutorial remedial instruction aimed at producing reading gains sufficient to insure academic success. During the first year of the program, the hoped-for gains failed to materialize, and program officials undertook a thorough reappraisal of procedures. Materials selections were revised; special inservice training was initiated for program teachers; facilities were upgraded; and screening procedures were refined to enable the program to diagnose more accurately the relation of reading potential to actual reading achievement. During the second year of the program, students made impressive gains. It was found that students instructed in small groups gained more than those who were tutored individually. Thus, by the third year, the program emphasized individually prescribed instruction with groups of five to eight pupils.

Although program format had been modified as a result of yearly evaluations, major objectives for the 1969-70 reading labs remained unchanged. These objectives were to: (1) raise the pupil's reading achievement to a level consistent with his reading expectancy so that he could benefit from instruction at his normal academic grade level, and (2) improve his self-concept and his social and academic acceptance in school.

Personnel

Program staffing differed somewhat from 1966 to 1970. The following is a summary of program personnel for 1969-70.

Program Director. The program director had a Master's degree and further graduate work in reading and test evaluation. In addition she had teaching and administrative experience. Her duties entailed supervision and coordination of the entire program.

Teachers (23). Half of the teachers had Master's degrees in reading, and most had some graduate work in the area. They had an average of three years of classroom experience, and most had taught in the program for at least one year. Teachers were responsible for administering diagnostic tests, grouping students, selecting materials, and carrying out instruction. Reading teachers worked with classroom teachers and principals in selecting students. Each teacher was responsible for a maximum of 30 students a day.

Counselors (2, part-time as needed). The counselors had counseling certification, teaching experience in Title I schools, and background in working with Mexican-American students. They did individual diagnostic testing of referred students; visited the labs periodically; coordinated work with the principals, teachers, and nurses; and assisted in evaluation.

Nurses (4, part-time as needed). The nurses were available to provide health-care services to all Title I programs.

Social Workers (3, part-time as needed). The social workers maintained home-school-lab contacts; they also served all Title I programs.

Secretaries (2). Two full-time secretaries performed clerical activities for the program.

Methodology

The Remedial Reading Laboratories program had three distinguishing components: special selection and scheduling procedures, provision for systematic instructional planning, and individualized instruction. All had evolved in the course of the program's efforts to achieve its major objective of reading improvements which would allow each pupil to perform at grade level.

Special selection and scheduling procedures. Pupils were selected for the program by a two-phase process. The first phase was general screening based on classroom teacher referrals. Using a form provided by the district, teachers compared students' intelligence test scores to their reading test scores, and their reading scores to their mathematics scores. Students whose reading achievement appeared to vary greatly from their IQ scores or their achievement in mathematics were referred as possible candidates for special remedial reading instruction in the labs.

The second phase of pupil selection included a more refined screening of the referred candidates. Pupils were ranked by an index obtained from one of two specially devised formulas, the "Adapted Bond-Tinker Formula" and the "El Paso Formula." The Adapted Bond-Tinker Formula was designed to estimate the difference between the pupil's potential and his measured achievement by comparing his reading and IQ scores. The El Paso Formula measured reading achievement in relation to mathematics achievement, with the purpose of providing a fairer estimate of a child's ability in cases of extreme reading disability or language problems. A low reading score and a high math score could indicate academic potential that was not being realized because of language difficulties. The El Paso Formula was often used in screening Mexican-American students for the program. According to data submitted for Title I evaluation studies, children who had indexes lower than 80 percent from one or both formulas tended to produce the greatest reading gains in the reading laboratory; therefore, the program gave priority to selection of those children.

Once students were selected, individual diagnostic tests were administered to determine the specific learning disabilities of each student and to aid in scheduling classes. The Silent Reading Diagnostic Tests by Bond-Clymer-Hoyt were used with students in grades four through six; the Stanford Diagnostic Reading Test was given in grades seven through twelve. Different methods of scheduling pupils for remedial reading were chosen by the principals in the various schools, depending on their individual scheduling situations. In general, students were grouped into classes by one of two methods -- selection by grade levels, or grouping according to specific reading disabilities. Within each class, instructional activities were individualized, and considerable time was spent on practice and reinforcement of newly acquired skills. These skills were constantly reevaluated and used as a basis for regrouping.

Provision for systematic instructional planning. In planning remedial instruction, teachers were urged to use the following guidelines:

- Effective reading instruction depends on thorough and continual diagnosis of individual proficiencies and deficiencies through both testing and informal analysis.

- Instruction is based on the profile of skills revealed by the diagnosis and is adjusted in response to the pupil's progress.

- Materials are sufficiently difficult to challenge the pupil, but sufficiently easy to insure his success.

- Little or no pressure from teachers and parents is brought to bear on the pupil.

- The criterion of skill mastery, rather than pupil's grade placement, governs the substance, pace, and direction of instruction.

- Individual assistance and personal encouragement are readily available to each pupil.

- No teacher is limited to a narrow range of materials or techniques.

Another aid to teachers was the availability of two books, one a 197 page document entitled A Diagnostic Approach to Remedial Reading, and the other, The Teacher's Source Book. These books, compiled by a group of principals and teachers during a summer workshop in 1969, contained detailed descriptions of methods suggested for use in organizing programs and in correcting various types of reading problems. The books were designed to insure a uniformly rationalized and executed program in all of the participating schools.

The first volume included, among other items, a variety of informal diagnostic tests and composite class record sheets for tabulating specific individual deficiencies. Using these forms, the teacher could determine which children had similar problems and could quickly structure or restructure groups accordingly. The second book consisted of a page-by-page item analysis of instructional materials housed in the reading laboratories. It assisted teachers in locating exercises appropriate to individual and group needs.

Individualized instruction. The major components of the instructional program were (1) individual diagnosis and prescriptive instruction, (2) small class size, and (3) varied instructional materials. Typical class sessions made use of frequently changing activities, at least three activities per session. For example, one such activity was a game designed to help children recognize and understand the formation of compound words. Working with cards on which the teacher had printed simple words such as "day," "light," "some," "time," the children put two cards together to form compound words such as "daylight" and "sometime." (For a more detailed description of methodology used in the Remedial Reading Laboratories, see the section entitled Specific Example of Methodology.)

Facilities. Facilities for the remedial program were special classrooms within each school which were designated as reading labs, or sometimes special buildings located on the school grounds. In the early days of the program some laboratories had been housed in any available space, such as boiler rooms or auditorium stages, but this was corrected as part of the effort to upgrade the program after the first year. In 1969-70 there were 25 Title I labs staffed by 23 teachers, two of whom rotated to serve more than one lab. Reading classrooms were organized by the teachers and generally included decorations designed to encourage reading and create a pleasant atmosphere. Desks and tables were informally grouped and could be easily rearranged for different learning activities.

In 1967-68, a special 11-room reading center was constructed on the campus at Bowie High School. The center provided a site for intensive inservice training sessions designed to give all reading lab teachers a thorough knowledge of specialized work in the field of reading. The center had classroom facilities where 72 pupils from nearby schools were given remedial reading instruction one hour a day. An adjacent room was equipped with one-way mirrors through which teachers observed remedial reading techniques. The reading center also served as a testing ground for new materials and equipment and contained a library which had over 1400 high-interest, low-vocabulary books. It therefore served as a resource center for teachers in the program.

Inservice training. After the disappointing results of the program's first year, the need for specialized reading training for the teachers became apparent, and during 1967-68 an intensive inservice program on released time was conducted at the newly constructed Bowie Reading Center.

In 1968-69 only 5 of the 23 teachers in the program were new, and it was therefore possible to devote inservice time to more specialized topics in reading instruction. The new teachers had a special three-hour orientation meeting before school opened and, along with all other elementary and secondary teachers in the program, participated in other three-hour sessions scheduled throughout the pre-school week. The sessions covered such topics as program changes for the coming year and refresher instruction on the use of laboratory equipment. Continuing inservice meetings took place throughout the year including two three-hour sessions which focused on case studies, and a meeting to discuss the screening process and the use of the Comprehensive Test of Basic Skills for pre- and post-testing. Altogether the teachers had about 27 hours of paid inservice work.

Materials and equipment. Materials used in the laboratories included numerous texts, paperback books for pleasure reading, filmstrips, kits, games, charts, and cards. The following list gives a few examples of some of the materials used:

Examples of Materials:	Publisher/Manufacturer:
MacMillan Spectrum of Reading Skills	MacMillan Publishing Co.
SRA Reading Laboratory	Science Research Assoc.
Dr. Spello	McGraw-Hill Book Co.
Be a Better Reader Series	Prentice-Hall, Inc.
Working with Sounds (Specific Skill Series)	Barnell Loft, Ltd.
Readers Digest Skill Builders	Readers Digest Publishing Co.
Dolch cards	Garrard Publishing Co.
Kenworthy games	Kenworthy Publishing Co.

In addition, laboratories were stocked with equipment such as EDL Controlled Readers and tachistoscopic filmstrips, Bell and Howell Language Masters, and filmstrip projectors.

Specific Example of Methodology

Many specific examples of methodology were systematically compiled in the book, A Diagnostic Approach to Remedial Reading. The suggested methods are grouped according to specific reading skills to provide a quick and comprehensive reference for teachers. Once a particular skill deficiency had been diagnosed, the teacher had a ready source of possible remedial activities pertaining to that skill. Skills were divided into four categories: (1) vocabulary development, (2) comprehension skills development, (3) study skills development, and (4) fluency and rate development. One example is given from each of the four skill areas.

Vocabulary development. One game activity used for work on basic sight vocabulary was "Word-O II." This game was designed to provide practice in recognition of vocabulary words introduced in the day's lesson. The teacher gave each child a piece of paper marked off into nine squares. She put 11 or 12 of the lesson's vocabulary words on the chalkboard and directed each child to put any nine of the words on his squares in any order he chose. As a caller pronounced the words in random order, each player covered the words called with squares of paper. The first player to cover three words in a row in any direction won the game. This game was similar to Bingo but was designed to be more adaptable to diagnostic teaching, lending itself to specific and immediate needs of the group.

Comprehension skills development. An activity used in this area involved newspapers. To stimulate interest in newspaper reading, the teacher supplied each student with a newspaper clipping. One brief question for each clipping was placed on the board in random order before the lesson began. As each pupil found an answer and read it to the class, the question was erased from the board.

Study skills development. To help children with organization of information, the teacher gave them pictures in mixed order. Pupils arranged the pictures to show story sequence. Later the teacher might give pupils disarranged paragraphs to put in proper sequence.

Fluency and rate development. Time-limited reading was one activity used in this area. Children were given a short selection to read in a limited amount of time. When the teacher called "stop," the students closed their books and the teacher uncovered a series of questions written on the chalkboard which were based on the selection. The children then wrote or told the answers to as many of the questions as possible.

In addition to the listing of games, exercises, and activities found in A Diagnostic Approach to Remedial Reading, the second book, The Teacher's Source Book, referred the teacher to specific texts which could be used for independent practice by the pupil after basic instruction in the particular skill had been provided by the reading teacher.

Budget

The program budget for 1969-70 was as follows:

Instruction and Administration	$ 168,010
Library and Audiovisual	2,462
Teaching Supplies	920
Equipment	2,042
Total	$ 173,434

Costs were somewhat higher for the program pupils in grades four through eight than for those in grades nine through twelve. Based on a total of 824 pupils who completed the program in 1969-70, the average per-pupil cost came to approximately $210. This cost was in addition to the amount regularly spent by the district on the full instructional program in all subjects.

The cost of replicating the program would vary in different locations depending on salary scales, availability of facilities, etc. Instructional materials were utilized as nonexpendable, and replacement and updating were required every six years. The amount needed to equip one reading laboratory with all necessary materials was estimated by the program staff as follows:

Grades four through eight:

Initial Unit Cost	$ 2,630.00
Prorated for six years	438.03
Per-pupil cost (50 per unit)	8.76

Grades nine through twelve:

Initial Unit Cost	$ 1,460.00
Prorated for six years	243.33
Per-pupil cost (50 per unit)	4.83

EVALUATION

The early years of El Paso's remedial reading program were primarily developmental in nature, with the full-grown program not getting underway until the 1967-68 academic year. Steirnagle (1971) in a recent journal article described in some detail the developmental years from 1963 to 1967. This section summarizes the results of program evaluations conducted since 1967.

The primary objectives of the Remedial Reading Laboratories program have been to: (1) raise the reading level of its pupils to the point that they can profit from instruction at their normal academic grade level, and (2) improve students' self-esteem, self-confidence and school adjustment by providing them with successful reading improvement experiences. Since 1967 a simple pretest-posttest model has been used to evaluate reading achievement gains. Students are pretested at the beginning of the academic year and posttested at the end of that year with standardized reading achievement tests. The second objective -- improvement in self-esteem, self-confidence, and school adjustment -- was evaluated for two academic years via post-program rating of students' classroom work habits, personal adaptability, interest, and social habits by their classroom teachers. The third academic year was evaluated by pre- and post-program ratings which permitted evaluation of students' improvement on the same personal and social traits.

Reading Achievement Results

Prior to the start of remedial instruction, the program's students were pretested with a standardized reading achievement test. A different form of the same test was administered at the end of each academic year. Three different reading achievement tests have been used through the years. During the 1967-68 academic year alternate forms of the Botel Reading Inventory were used. The California Achievement Tests (Vocabulary, Comprehension and Total Reading) were used during the 1968-69 academic year, and the Comprehensive Test of Basic Skills (Vocabulary, Comprehension, and Total Reading) was used in 1969-70. Pretest-posttest differences were analyzed to determine if the children had made significant reading achievement gains.

Table 1 summarizes the mean reading achievement gains made by the students during the 1967-68 academic year on the Word Opposites Reading and Word Opposites Listening subtests of the Botel Reading Inventory. The Word Recognition subtest was also administered; however, the results are not described here since the majority of the students approached the test's ceiling on the pretest, making it impossible to measure meaningful gains on the posttest. Data for both private and public school children across grade levels for both subtests are reported in grade-equivalent units.

During the eight months between pre- and posttesting, the program's children made grade-equivalent gains ranging from 1.6 to 3.7 on the Word Opposites Reading subtest and from 1.1 to 3.3 on the Word Opposites Listening subtest. In all cases the gains were greater than the eight months' gain that would be expected for non-disadvantaged children, without reading problems, during that period. The gains can therefore be considered educationally significant. However, since statistical tests were not reported, the reliability of the gains has not been substantiated.

California Achievement Test Vocabulary, Comprehension, and Total Reading mean posttest and gain scores for the 1968-69 academic year are summarized in Table 2. Only scores for the public school children appear in the table. The private school children's posttest and gain scores were very similar.

Data were available which enabled AIR to test pretest-posttest difference scores for each subtest at each grade level by means of repeated measure *t* tests. Except for the seventh-grade vocabulary and comprehension gains, all mean gains were found to be statistically significant ($p < .05$, one tailed *t* test). It can therefore be concluded that gains demonstrated by the program's children, with the exception mentioned above, were statistically significant gains.

TABLE 1

1967-68 Reading Achievement Posttest and Gain Scores on the Word Opposites Reading and Word Opposites Listening Subtests of the Botel Reading Inventory

	Public School					Nonpublic School				
		Reading		Listening			Reading		Listening	
Grade	N	Post	Gain	Post	Gain	N	Post	Gain	Post	Gain
4	148	4.3	2.2	4.5	1.9	20	4.2	2.5	4.6	2.7
5	128	4.7	1.9	5.1	2.0	18	4.8	2.5	5.1	2.6
6	105	5.4	1.6	5.5	1.1	24	5.4	2.0	5.8	2.5
7	74	6.4	2.2	6.3	1.6	21	7.0	2.7	6.5	2.1
8	11	7.2	2.0	7.3	2.6	25	7.0	2.5	7.3	2.5
9-12	NA	NA	NA	NA	NA	21	9.7	3.7	9.4	3.3

NA: not administered

Since the time between pre- and posttest administration was eight months, any gain greater than the .8 grade-equivalent units expected for "average" children can be considered educationally significant. Inspection of Table 2 indicates that all mean gain scores were greater than the expected .8. It can therefore be concluded that they were educationally as well as statistically significant.

The Reading subtest of the Comprehensive Test of Basic Skills was administered to the students during the 1969-70 academic year. The Vocabulary, Comprehension, and Total Reading posttest and gain scores are summarized in Table 3. Again, because of the similarity between the public and nonpublic school children's scores, only scores for public school children appear in the table.

As in 1967-68, the gain scores were not subjected to statistical analysis. Consequently, little can be said about the statistical significance of the gains. However, educational significance can be assessed in terms of the .8 grade-equivalent gain expected of average children during the period between testings. All Total Reading score gains reached the required level for educational significance. Two mean Vocabulary

TABLE 2

California Achievement Test Vocabulary, Comprehension, and Total Reading Posttest and Gain Scores for the 1968-69 Academic Year (Grade-Equivalent Units)

		California Achievement Test					
		Vocabulary		Comprehension		Total Reading	
Grade	N	Post	Gain	Post	Gain	Post	Gain
4	163	4.7	1.3*	4.8	1.5*	4.8	1.5*
5	175	5.4	1.5*	5.6	1.9*	5.5	1.8*
6	142	5.4	1.3*	5.9	2.0*	5.7	1.8*
7	71	7.3	1.9	7.4	1.7	7.4	1.7*
8	93	8.4	2.3*	9.0	2.4*	8.7	2.3*
9-12	48	8.3	1.5*	8.5	1.1*	8.5	1.1*

* $p < .05$, one tailed t test

gains and one mean Comprehension gain met but failed to exceed the 8-months gain expected for average children.

On the basis of three years of evaluation data, it appears that children attending the Remedial Reading Laboratories have generally made reading achievement gains greater than would be expected of average children, without reading problems, during the same period. Further, the educational significance of those gains has been demonstrated for three consecutive years when different achievement tests were employed. Finally, when statistical tests were run on the 1968-69 data, the gains were found to be statistically as well as educationally significant.

TABLE 3

1969-70 Academic Year Vocabulary, Comprehension, and Total Reading Posttest and Gain Scores on the Comprehensive Test of Basic Skills (Grade-Equivalent Units)

		Comprehensive Test of Basic Skills					
		Vocabulary		Comprehension		Total Reading	
Grade	N	Post	Gain	Post	Gain	Post	Gain
4	214	3.7	1.0	3.7	1.2	3.8	1.2
5	175	4.0	.8	4.3	1.2	4.2	1.1
6	140	4.6	1.0	5.0	1.6	5.0	1.5
7	69	5.1	.8	5.1	.8	5.2	.9
8	48	6.4	1.3	6.7	1.4	6.5	1.4
9-12	31	6.8	.9	7.2	1.3	7.0	1.0

Teacher Ratings of Student Behavior

At the end of the 1967-68 and 1968-69 academic years, a random sample of students completing the Remedial Reading Laboratories experience were rated by their classroom teachers in regard to their work habits, personal adaptability, interest, and social habits in the classroom. Teachers were asked to rate the students on a five point scale ranging from excellent to unsatisfactory. The sample size was 107 and 105 students for the 1967-68 and 1968-69 academic years, respectively. More than 80 percent of those students rated at the end of both years were given a rating of average or above for all four categories rated.

A similar rating of a sample of students was conducted during the 1969-70 school year. However, unlike previous years, the rating was done prior to entry into the remedial program and after the program was completed. A random sample of 106 students were rated in October and again in May. As illustrated in Table 4, there was a considerable increase in the percentage of students given above average and excellent ratings after they completed the program. Chi Square analyses conducted by AIR showed that the shift toward more favorable post-program ratings was statistically significant at the .001 level for Personal Adaptability, Interest, and Work Habits and at the .05 level for Social Habits.

On the basis of the teacher rating data summarized here, it appears that the remedial reading experience received by the children resulted in some improvement in their self-confidence and self-esteem which manifested itself in improved personal and social school behavior.

TABLE 4

Pre- and Post-Program Teacher Ratings of
106 Students on Personal and Social Traits

Traits Rated	Poor		Below Average		Average		Above Average		Excellent	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Personal Adaptability	2	2	15	5	48	27	25	46	10	20
Interest	2	2	16	8	40	26	30	37	12	27
Work Habits	6	2	16	8	35	27	35	36	8	27
Social Habits	3	3	20	11	27	24	27	35	23	27

Percent Rated in Each Category

Follow-Up Results

From the group of students that completed the remedial program during the 1967-68 academic year, 180 students were selected for follow-up in 1968-69. The follow-up students fell into one of three categories:

Category 1 -- students reading at normal grade level in May, 1968, who had made three or more years gain in reading achievement during the 1967-68 school year.

Category 2 -- students reading at grade level in May, 1968, who made less than three years gain in reading achievement during 1967-68.

Category 3 -- students reading below grade level in May, 1968, who made at least three years gain in reading achievement during 1967-68.

During December of 1968, these students' current teachers were asked to rate the students' classroom adjustment in terms of a three point scale (good, borderline, poor). Analysis of the rating data indicated that 90 percent of the students in Category 1 and more than 80 percent of the students in the other two categories were considered by their teachers to be well adjusted to school. Only 3 percent of the students were considered to have school adjustment problems.

Reading, mathematics, and social studies grades for the first marking period were also analyzed for the 180 students followed up. The students in Categories 1 and 2 had an average grade in all three subjects above C, while the mean grade for those students in Category 3 was C in mathematics and slightly below C in the other two subjects.

On the basis of the follow-up described above and two years of additional follow-up of those students, it was concluded that a large percentage of students from the 1967-68 student group have continued to retain their ability to cope with grade-level subject matter and have improved attitudes toward self, school, and society.

MODIFICATIONS AND SUGGESTIONS

Based on program findings concerning the effectiveness of small-group instruction as compared to individual tutoring, staff members suggested the possibility of increasing class size to 10 and providing a paraprofessional aide for each teacher. The addition to the teacher training program of a medium-level course in the psychology of reading was another suggested modification.

SOURCES FOR FURTHER INFORMATION

Personnel

For further information concerning the Remedial Reading Laboratories, the following individuals may be contacted:

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APPENDIX B

CURRENT STATUS OF ORIGINALLY IDENTIFIED SUCCESSES

PRESCHOOL PROGRAM

FRESNO, CALIFORNIA

History

The Fresno Preschool Program began as a pilot project serving 45 preschool, disadvantaged children during the 1964-65 academic year. In successive years it has grown to the point that during the 1969-70 academic year 750 students were served in 50 classes at 19 elementary school sites.

The only major change in the program through the years occurred in 1969 when the new ESEA Title I guidelines made children from low-income families living outside the Title I target area no longer eligible for the program. State funds were provided to continue serving some of the children eliminated; however, State guidelines required that children served from non-Title I target areas be selected only from welfare recipient families. Thus, children from low-income families outside the impacted area unable to qualify for welfare have been eliminated from nearly half of the program's classes. Nevertheless, the program was able to recruit, under the new guidelines, the same number of children it served in 1967-68, when the requirements for eligibility were less strict. In essence, the change in guidelines has forced the program to focus on the most severely disadvantaged students in the Fresno area.

Methodology

The major components of the Fresno preschool program are: (1) language, cognitive, motor, and social skill instruction; (2) adult to pupil ratio of 1:5; (3) health services; (4) intense community and parental involvement; and (5) continuing staff development. Children from three to five years of age from families receiving welfare or living in the Title I target area attend classes three hours each day, five days a week for an entire academic year. Each class consists of approximately 15 children and is staffed by a certified teacher, an instructional aide, and a parent or community volunteer.

Language, cognitive, motor, and social skill instruction take place in small discussion-activity groups which provide a responsive learning environment. Children are free to explore, experiment, select activities, pace themselves, and discover relationships about their physical, cultural, and social world. Health services are provided by qualified nurses who conduct dental, vision and hearing screening programs, arrange appointments for physical examinations, consult with parents, and assist the teaching staff in regard to health education. Parents assist in the classrooms, attend parent meetings, and help plan and accompany children on study trips.

Monthly meetings attended by the preschool staff, nurses, principals, resource teachers, and parents are held to coordinate the instructional program, materials, and activities. A number of pre-service meetings and a series of inservice meetings are also held throughout the year for preschool personnel.

Evaluation and Follow-up

The original It Works description of the program summarized the evaluations completed from 1965 through 1968. Briefly, during those three academic years the Peabody Picture Vocabulary Test was administered sometime near the beginning of the academic year and again at the end of the school year. Pretest, posttest, and change IQ scores were analyzed for each of the three ethnic groups in the program; namely, Caucasian, Mexican-American, and black. The program's narrative report for 1964-65 stated that nearly every child had an IQ improvement of 10 to 20 points over a period of a year and a half (the evaluation report for that year was unavailable). The evaluation for 1966-67 indicated that (1) all three ethnic groups made statistically significant IQ gains ranging from approximately 4 to 18 points, (2) there was a statistically significant difference in IQ between the groups prior to the preschool treatment, and (3) after treatment the three ethnic groups did not differ significantly in IQ.

The results of the 1967-68 evaluation again indicated that all three ethnic groups made statistically significant IQ gains. The gains ranged from 12 to 15 points. As reported the previous years, there were again statistically significant IQ differences on the pretest, but unlike the previous year, statistically significant ethnic group differences were also found on the posttest. On both the pretest and posttest, the Caucasians had the highest mean IQ, followed by the Mexican-Americans, and the blacks.

An attempt was made to obtain copies of all evaluation reports issued since the It Works description. The 1969-70 evaluation report was acquired; however, the report for 1968-69 was unavailable.

Again during the 1969-70 academic year the Peabody Picture Vocabulary Test was administered prior to the beginning and at the end of the school year. Variance analysis of the pretest and posttest data indicated that (1) the groups differed on the pretest and posttest with the Caucasian group mean about 10 IQ points higher than either the Mexican-American or black groups who had quite similar IQ's, and (2) all groups made a significant IQ gain, approximately 18 points for the Mexican-American group and 15 points for the other two groups. On the basis of these results and those of previous years, it appears that the Fresno Preschool Program has consistently raised the IQ of its participants by approximately 10 to 15 points, regardless of their ethnic origin. On the basis of Peabody Picture Vocabulary Test scores, the program is a continued success.

Follow-up data on the children that attended the preschool during earlier years is also reported in the 1969-70 evaluation report. During the 1969-70 school year students in the first, second, and third grades in Title I schools were administered standardized reading and arithmetic achievement tests. The reading tests were administered in May, and arithmetic tests in October and May. The reading test used for first-grade students was the Cooperative Primary Reading Test. In the second and third grades, the Stanford Reading Test was administered. The Arithmetic section of the Stanford Achievement Test was administered to the first- and second-grade students, while the California Test of Basic Skills Arithmetic section was used in the third grade.

The mean differences between the pretest and posttest arithmetic scores and the differences between the posttest scores on the reading achievement tests for students that had the preschool experience were compared to those of children who had not attended preschool. At each grade level the differences between the two groups were small and did not reach statistical significance. This result suggests that the preschool experience had little, if any, effect on the reading and arithmetic achievement of the children when they were tested two, three, and four years after the preschool exposure.

In addition to the follow-up described above, a longitudinal analysis of third grade students' Stanford Reading Test scores at the end of the 1968, 1969, and 1970 academic years was conducted. The scores of children that had the preschool experience were compared to those of children in the Title I schools who did not attend preschool. Statistical analysis indicated that the reading achievement gain made by the preschool exposed children from 1968 to 1970 was significantly greater than that made by the unexposed children, 1.31 and 1.08 grade-equivalent units respectively. Since the grade-equivalent gain expected for "average" children during that same period of time is 2.0 units, it can be concluded that although the preschool experience apparently had some effect in improving the reading achievement rate of gain of the students, the extent of that gain is small and of little educational significance.

Conclusions

On the basis of the evaluation data available at the time of writing, it can be concluded that the Fresno Preschool Program has consistently raised the IQ (as measured by the Peabody Picture Vocabulary Test) of its students, regardless of their ethnic group membership. However, follow-up data indicate that the program has had little, if any, effect on the children's arithmetic and reading achievement when tested in the elementary grades. Longitudinal data on one group of students did indicate that they made a greater reading achievement gain between the first and third grades than did unexposed students; however, the extent of the difference, although statistically significant, was of little educational significance.

Replications

The Fresno Preschool Program has received numerous requests for program information. However, to the best of the program staff's knowledge, no attempt has been made to replicate the program at another site.

References

Fresno City Unified School District. Title I Report -- Evaluation of the compensatory education program, 1969-1970 school year. Vol. 1. Fresno, Calif.: Office of Planning and Research Services, Fresno City Unified School District, August 1970.

INFANT EDUCATION RESEARCH PROJECT

WASHINGTON, D. C.

History

Intellectual stimulation of culturally deprived infants in their homes for 21 months was provided by the Infant Education Research Project. The program began in September 1965 and was concluded when all of the project's infants completed their 21 months of training. Intervention was initiated when the infants were 15 months of age and ceased when they reached the age of 36 months.

Evaluation data were collected on the stimulated infants and a similar control group prior to, during, and upon completion of the intervention. Follow-up of both groups of children is continuing. The children entered the first grade during the 1970-71 academic year.

Methodology

Twenty-eight culturally and economically disadvantaged black infants were intellectually stimulated in their homes by specially trained tutors one hour per day, five days per week for a total of 21 months. Infants received the special intervention from age 15 months to age 36 months. The intervention focused on language and intellectual stimulation. On a one-to-one basis tutors stimulated the infants verbally, with books, pictures, games, toys, music, and puzzles. They attempted to provide the attention and stimulation that non-disadvantaged infants usually get in their homes. The infant's mother and other family members were encouraged to participate during the sessions and to use the tutor's behavior as a model for further family-infant interaction.

Evaluation and Follow-up

The experimental and control infants were tested with the Bayley Infant Scales at age 14 months, prior to the start of tutoring. They were retested with the Bayley at 21 months and with the Stanford-Binet at 27 and 36 months. The Peabody Picture Vocabulary Test, the Johns Hopkins Perceptual Test, and the Aaronson and Shaefer Preposition Test were also administered to the infants when they were 36 months old. The mean intelligence quotients of the two groups at 14 months of age were not significantly different; however, at each retesting thereafter (21, 27, and 36 months of age) the stimulated group's mean IQ was found to be significantly higher than that of the control group ($p < .05$).

The difference in favor of the stimulated group increased progressively at each retesting from approximately 7 points at age 21 months to 17 points at the end of the intervention period. The Peabody difference between the groups at 36 months of age was also statistically significant and approximately 11 IQ points in favor of the tutored group ($p < .01$). A statistically significant difference in favor of the stimulated group on the Johns Hopkins Perceptual Test was also evidenced ($p < .01$). The small difference on the Aaronson and Shaefer Preposition Test, however, did not prove to be statistically significant.

The children in both groups have been periodically retested. When they complete the first grade at the end of the 1970-71 academic year, they will again be retested to determine the effect of intervention on their school achievement and adjustment. Follow-up data are being withheld by the project director until retesting at the end of grade one is completed. Shortly after that retesting, the follow-up data will be released.

Conclusions

On the basis of the data reported in the original It Works write-up and briefly summarized above, it can be concluded that the Infant Education Research Project was successful in increasing the IQ and perceptual skills of culturally and economically disadvantaged black children. The retention of those gains and their effect on school achievement and adjustment is currently under investigation. Follow-up data, when released, will provide information relating to the long-term effects of the intervention.

Replications

Considerable interest has been expressed in the Infant Education Research Project as evidenced by the many requests for program information throughout the years. The program director has not, however, received any feedback in regard to implementations of the program elsewhere. A program entitled the Mother-Child Home Project which is described in this report as a new success is very similar to this project and was begun at about the same time as the Infant Education Research Project.

References

None

EARLY CHILDHOOD PROJECT

NEW YORK, NEW YORK

History

The Early Childhood Project developed its guiding educational philosophy from the results of a series of studies begun in 1958 by Dr. Martin Deutsch, the program director. A demonstration enrichment program for preschool disadvantaged children based upon that philosophy was started in 1962. In 1964 the program was expanded to include children from preschool through grade three. The basic preschool through grade three program as described in the It Works description was still in operation during the 1970-71 academic year.

Methodology

The program consists of two primary interrelated instructional components: (1) an early intervention preschool program focused on the development of self-image; competence; and language, preceptual, and conceptual skills; and (2) a kindergarten through grade three program in language-reading, math-science, and creative dramatics that was designed to reinforce and build upon that which had been acquired during the initial preschool intervention. In addition to these instructional components, the program has an intense parental involvement, an inservice training, and a social service component. The entire program is designed for culturally and economically deprived children and their parents. Most of the children served to date have been from the ghetto areas of Harlem.

The program is distinguished by (1) an overriding philosophy that early intervention and continuous elementary-grade reinforcement is necessary to overcome the educational handicaps associated with poverty, and (2) a continuously evolving and highly structured preschool through grade-three curriculum. Individualized and small-group instruction is provided by an instructional team consisting of teacher, assistant teacher, curriculum specialists, and supervisors coordinated by a curriculum director. The entire curriculum is designed to build upon and reinforce what has been learned at lower grade levels.

The major changes in the program since the It Works description are related to the development and use of various instructional materials. New materials are constantly being developed and pilot-tested. Commercial materials that appear relevant to the program are also introduced for evaluation purposes. Only those materials that appear to improve the self-esteem and achievement of the students and that fit within the total curriculum package are adopted for regular use.

Evaluation and Follow-up

The 1968 It Works description of the program summarized the evaluation data available at that time. In general, it can be said that there was some evidence that the program children had Stanford-Binet IQ gains greater than those made by similar control groups. Also, it appeared that the program children maintained their superiority over the control groups after a second year of intervention.

Since that description, some additional data have been collected and analyzed. Data for four groups of students that completed two years of intervention, prekindergarten and kindergarten, were combined and compared to similar control groups. The Stanford-Binet Intelligence Scale and the Peabody Picture Vocabulary Test were administered to the control and program students prior to the start of prekindergarten intervention, after prekindergarten, and upon completion of the kindergarten year. The children that received the intervention were found not to differ significantly from the control children prior to the start of prekindergarten. However, at the end of each of the two years of intervention, the program children were found to be significantly superior to the control group. These results are based upon the data reported in the journal article referenced below. Statistical significance levels were not reported. Additional data are presumably available but had not been received by the time of writing.

Conclusions

Statements in regard to the efficacy of this program should be reserved until more adequate data are reported. The program director is currently in the process of completing a monograph that will summarize the effects of the program on the first four groups of children that have been served.

Replications

According to an associate of the program director, the Early Childhood Project has been replicated in whole or part in the following communities:

Cleveland, Ohio -- Public School Head Start Program

Tuscumbia, Alabama -- Head Start Program

Tuscumbia, Alabama -- Public School Early Grade Program

Dade County, Florida -- Head Start Program

Pittsfield, Massachusetts -- Berkshire County Head Start Program

Each of these programs was sent a letter asking them to provide this project with their latest evaluation reports. Only two programs replied; namely, the Cleveland and Pittsfield programs. The director of the Pittsfield program reported that the Early Childhood Project team had provided training and consulting services to their Head Start personnel, but no mention was made of attempts to replicate and no evaluation data were provided. Similar consulting and training services were provided at Cleveland; however, the influence of those services on their Child Development Project is not entirely clear from their evaluation reports. Also, the data in those reports do not permit any reasonable inferences as to the effectiveness of the program.

References

Deutsch, M. Happenings on the way back to the forum: Social science, IQ, and race differences revisited. Harvard Educational Review, 1969, 39(3), 523-557.

PERRY PRESCHOOL PROJECT

YPSILANTI, MICHIGAN

History

Since September 1962, the Perry Preschool Project has provided a program of daily preschool and weekly home instruction to disadvantaged three- and four-year-old youngsters. The program has recently been renamed the Ypsilanti High/Scope Preschool Project, and its revised curriculum is now known as the "Cognitively Oriented Curriculum." Curriculum changes and new evaluation and follow-up data are summarized under appropriate headings below.

The program's curriculum is currently being used as a model for the "Planned Variation Head Start" aspect of the national Follow Through program. One objective of "Planned Variation" is to compare the short- and long-term effectiveness of eight distinct preschool education programs for disadvantaged children. The Cognitively Oriented Curriculum model is being used at Okaloosa, Florida; Greeley, Colorado; Central Ozarks, Missouri; and Seattle, Washington. Comparison data for the eight preschool models for the 1969-70 academic year have been collected; however, the Follow Through office at USOE has not yet released the results.

Methodology

The original components of the Perry Preschool Project were: (1) a daily three-hour, highly structured nursery session; (2) a weekly 90-minute home visit; and (3) less frequent group meetings with parents. A curriculum revision which was influenced by Piaget's development theory was introduced in 1965. The latest description of the program appears in a curriculum manual recently published by the National Association for the Education of Young Children, entitled The Cognitively Oriented Curriculum, A Framework for Preschool Teachers. Although it was impossible to obtain a copy of that document before this writing, an abstract of it was acquired (Report on Education, December 9, 1970, pp. 6-8). On the basis of that summary, it appears that in addition to the structured Piagetian nursery program, the weekly home instruction, and parent meetings, a socio-dramatic play component has been added to the program. It also appears that the curriculum has become even more structured and articulated.

Evaluation and Follow-up

Each year from 1962 through 1967 two matched groups of children were randomly assigned to either a treatment or a no-treatment group. Both groups were pretested with a battery of intelligence tests and plans were made to posttest them with the same battery at the end of each academic year from preschool through grade three. A standardized achievement test was also administered to all treatment and control groups as they completed each school year from grade one through three. The It Works description of the program summarized preliminary results for five "waves" of children that started the program in five consecutive years. At that time only one "wave" had completed the third grade, the others had completed anywhere from their first of two preschool years to grade two. Subsequent to the It Works summary, a report was published which described a more in-depth analysis of the same data. Those results are described briefly below. The final data analyses for the program began in June 1971, when the last wave of children completed the third grade. The results of that analysis will be published shortly.

The 1970 evaluation report for the program, referenced below, reported the following results: (1) children who participated in the preschool program made significantly greater cognitive gains than did the control children (as measured by the Stanford-Binet intelligence scale, Leiter International Performance Scale, Peabody Picture Vocabulary Test, and Illinois Test of Psycholinguistic Abilities); (2) they maintained those gains for three years; however, at the end of the fourth year the posttest scores of the preschool group were not significantly different from those of the control group; and (3) children who participated in the preschool performed significantly better on the California Achievement Test in the first, second, and third grades than did the control group children. In addition, children that had the preschool experience were rated by their teachers as being better adjusted and showing more promise than the control children. These results are essentially the same as those described in the It Works description. They are, however, based upon more detailed data analyses.

Conclusions

Conclusions about the ultimate success of the program should be reserved until final follow-up data are published. The results reported to date do, however, seem to indicate that the program is successful in providing children with a head start in the cognitive domain that, on the basis of achievement test data, is maintained at least up to grade three.

Replications

See History above.

References

Weikart, D. P., Deloria, D. J., Lawser, S. A., & Wiegerink, R. Longitudinal results of the Ypsilanti Perry Preschool Project. Final Report to U. S. Department of Health, Education, & Welfare, Office of Education, Bureau of Research, August, 1970. (ED 044 536)

It works in Ypsilanti: The cognitive curriculum. Report on Education Research, 2(25), December 9, 1970.

DIAGNOSTICALLY BASED CURRICULUM

BLOOMINGTON, INDIANA

History

The Diagnostically Based Curriculum program provided a highly structured preschool experience to a different group of disadvantaged children each year for three consecutive years beginning in 1964. The instructional aspect of the program ceased to exist in the Spring of 1967. Data analysis continued for a short period thereafter.

Methodology

The program's curriculum was designed to remedy the specifically diagnosed deficits of each individual child in the areas of language development, concept formation, socialization, self-concept, and motor development. Promotion of personal-social adjustment to group learning experiences, and cognitive development within the formal teaching-learning structure were the two primary goals of the curriculum. School adjustment and social and self-concept development were fostered through the use of several behavior modification techniques; e.g., rewards contingent on appropriate behavior, behavior shaping, development of secondary reinforcers, etc. These techniques were used early in the program to develop appropriate listening, planning, concentration, and work behaviors. The language program was based upon individual diagnosis and individualized prescriptive teaching in the area of oral elaborative language development. A diagnostic/prescriptive approach was also employed to develop fine and gross motor skills. One group of disadvantaged children attended the preschool daily each academic year.

Evaluation and Follow-up

No new evaluations or follow-ups have been completed since those described in the It Works documentation of the program. Briefly, at that time the program was found to (1) increase the intelligence of the preschool children significantly more than that of either a kindergarten control group or a no-treatment control group (Stanford-Binet intelligence scale and Columbia Mental Maturity Scale), and (2) produce greater achievement gains on language tests (Illinois Test of Psycholinguistic Abilities and Peabody Picture Vocabulary) than experienced by either of the other two groups. On a fine motor skills test (the Lincoln-Osteretsky Motor Development Scale) the preschool and kindergarten children made gains which were significantly greater than those of the no-treatment group. Some evidence of social behavior improvement and increased task involvement was reported for the preschool children. Follow-up data indicated that at the end of the first grade the three groups no longer differed in IQ. The control group caught up to the other two groups after one year of traditional first-grade work.

Conclusions

On the basis of the data originally reported in the It Works description and briefly summarized above, it appears that the Diagnostically Based Curriculum was more effective than either no preschool experience or a traditional kindergarten experience in improving the intelligence and language facility of disadvantaged preschool-aged children. Follow-up data indicated, however, that a traditional first-grade experience without preschool resulted in similar IQ gains at the end of grade one. No conclusions can be reached in regard to the continued achievement of the three groups since no further follow-up data, either IQ or achievement, have been reported.

Replications

The original program director reported that the Diagnostically Based Curriculum is being used as a model in the national Follow Through program. The locations of these replications were not yet determined at the time of writing.

References

None

ACADEMIC PRESCHOOL

CHAMPAIGN, ILLINOIS

History

The Academic Preschool provided a highly structured curriculum in reading, language, and arithmetic to four- and five-year-old disadvantaged children from the fall of 1964 through the spring of 1968. A similar curriculum is now being utilized with mentally retarded children at the University of Illinois. The program has also become a model for the national Follow Through program. As such it is being employed in 19 communities throughout the country. There have been a number of changes in the curriculum, most of which have been prompted by the desire to expand the program, make it exportable to a wider variety of school situations, and minimize the degree of teacher training required for its effective use.

Methodology

As it currently exists, the program is remedial, emphasizing the acquisition of the academic skills required for later school success in the areas of reading, language, and arithmetic. The program requires direct and repetitive instruction similar to what has been traditionally used in the lower elementary grades but seldom used in preschool. Children are grouped roughly according to ability and assigned to three small groups corresponding to each of the three academic skills taught. Each of three teachers specializes in one of the academic areas -- reading, language, or arithmetic -- and teaches it to all three groups. Children are taught in small groups for 20 minutes daily in each academic area by the area specialist.

The three academic areas are programmed for the teachers. Children are required to master each step of the program before the group proceeds to the next step. Material is geared to the lowest performer in the group since the goal of instruction is to teach every child each critical skill. Teachers employ a procedure called "patterned drill" which consists of teacher-modeling followed by elicitation of unison responding by the children. The pace is rapid and the classroom atmosphere is characterized by its "business-like task orientation." The reading curriculum employs a modified "initial teaching alphabet," phonic approach. The arithmetic program is built around counting operations. Children are taught how addition, subtraction, and multiplication reduce to counting operations. Language instruction is oriented toward the structural and logical components of language. In addition to the daily 20 minutes of instruction in each of the academic areas, there is some whole-group activity, reading and discussion, and free play time.

Evaluation and Follow-up

The It Works description summarizes the results of an early evaluation which indicated that (1) the Academic Preschool children achieved significantly greater Stanford-Binet IQ gains than did a comparable control group at the end of the first and second vears of instruction, and (2) after two years of Academic Preschool and prior to entering the first grade, the children's reading, arithmetic, and spelling achievement as measured by the Wide Range Achievement Test Battery was at approximately the second grade level. Since that evaluation considerably more evaluation data have been collected, especially in association with the Follow Through program. According to one of the original program directors, these results are quite impressive. Unfortunately, the results have not yet been released by the national Follow Through office.

In addition to the Follow Through data which should be released shortly, several independent investigators have compared the Academic Preschool curriculum, commonly known as the Bereiter-Engelmann curriculum, to other traditional and innovative preschool curriculums. In general, the results of these studies indicate that the Bereiter-Engelmann curriculum is more effective than traditional preschool programs. It often is more effective than other innovative preschool programs. Some of these studies are referenced below.

Conclusions

On the basis of the early evaluation data and the curriculum comparison studies referenced below, the Bereiter-Engelmann curriculum appears to be one of the most effective preschool programs currently in existence. According to one of the program directors, the Follow Through data, when released, will substantiate this conclusion.

Replications

As mentioned above, the Bereiter-Engelmann curriculum is used as a Follow Through model in 19 communities throughout the country. The interested reader is referred to the Follow Through Project Directory, referenced below, for the addresses of those replications. The curriculum comparison studies, also referenced below, provide some additional replication information in addition to program effectiveness data.

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THE PRESCHOOL PROGRAM

OAKLAND, CALIFORNIA

History

Since its inception in 1966, the Oakland Preschool Program has provided a highly articulated preschool program to approximately 500 disadvantaged three- and four-year-old children annually. The program began with four school sites in 1966 and gradually expanded to 15 sites by the 1969-70 school year. Although the program has expanded and has continuously revised its instructional methods and materials, it has maintained the same essential character that was described in its It Works write-up.

Methodology

The primary goal of the program is to utilize professional staff, paraprofessional staff, and parents in a joint effort to help disadvantaged children to increase their potential for success in school. Children are exposed to an individualized, sequential series of learning experiences for 3 3/4 hours daily in a class composed of approximately 15 children, a teacher, a teacher aide, and one or more parents. The instructional objectives focus on (1) augmentation of conceptual and cognitive development, (2) improvement of language skills, (3) stimulation of interest and curiosity, and (4) improvement of the social-emotional adjustment of the children.

Manipulative materials such as games and puzzles are used to augment cognitive development; conversation with adults, dramatic play, listening centers, and Language Masters are used to improve language skills; curiosity and interest are stimulated by field trips, music, rhythm activities, and natural science experiments in the classroom; and social-emotional adjustment is fostered by the interaction of the children with adults and other children from outside their immediate family.

Evaluation and Follow-up

Evaluation data from spring 1967 through fall 1968 were summarized in the program's It Works description. On the basis of Pictorial Test of Intelligence pre-treatment and post-treatment scores, all preschool groups made statistically significant gains in IQ of approximately 8 points; and in all cases, their posttest IQ's were significantly greater than a comparable no-treatment control group. Since that summary, evaluation data for the 1968-69, and 1969-70 academic years have been reported. During 1968-69, pretest and posttest data on the Caldwell Preschool Inventory indicated that the preschool had a significant impact on the school readiness skills of the children. Gains were statistically significant for each subtest of the scale; namely, Personal-Social Responsiveness, Associative

Vocabulary, Numerical Concept Activation, and Sensory Concept Activation. One group of children was posttested at the end of the preschool year and another was posttested after they had been in kindergarten for two months. The group posttested immediately after the preschool experience made a 25 percentile-point gain on the total score of the Preschool Inventory while the delayed-posttest group made a gain of 18 points. When compared on the same scale in kindergarten to a group of more economically advantaged children, no statistically significant differences were found between the groups.

The results for the 1969-70 academic year were even more impressive, with a group that started preschool at age three making a 40 percentile-point total score gain and a group that began preschool at age four achieving a 50 percentile total-score gain in six months when tested with the Preschool Inventory. The children that started preschool at age three had a posttest percentile score of 85, while those children that began the program when four years of age scored at the 93rd percentile. Staff and parent ratings of program effectiveness have generally been favorable throughout the years.

Conclusions

On the basis of the data described above, it appears that the Oakland Preschool Program has consistently improved the readiness skills of the disadvantaged children that it has served. Some caution is suggested in interpretation of the last two years' results, however, since the Caldwell Preschool Inventory used those years has been subjected to considerable criticism in terms of its standardization. It is currently being restandardized.

Replications

Although considerable interest in the program has been evidenced by requests for information and site visits, replications of the program are unknown.

References

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LEARNING TO LEARN PROGRAM

JACKSONVILLE, FLORIDA

History

During the 1965-66 school year, the Learning to Learn School provided a unique preschool experience to a small group of disadvantaged youngsters. At the end of preschool, their development was compared to that of two similar groups of children, one that received a traditional preschool program, and another that received no formal preschool training. The three groups were also compared when they completed the first, second, and third grades. Two new groups of children began the program in 1968. Their development will be followed through the second grade.

Methodology

The Learning to Learn curriculum has maintained its original characteristics throughout the years. It is designed to help children develop appropriate strategies for gathering information, problem-solving, and decision-making. Unique techniques and materials are used to provide an optimum environment in which children can "learn to learn" through manipulation, exploration, and experiment. The child moves from motor manipulation to development of perceptual imagery to symbolic experiences through the medium of interesting and challenging games and gamelike activities. The games used in the program were constructed around five content areas -- clothing, food, animals, furniture, and transportation. Each content area takes the child from concrete activities to more abstract and symbolic activities. Every game or activity engages the child in some kind of active interplay of manipulation, perception, and verbalization.

Learning to Learn teachers are child- rather than content-oriented. Their roles are carefully defined to reflect the premise that each child has a drive for maturity, competence, and mastery over his environment. They create and maintain an environment where the child can develop independence, responsibility, self-confidence, and respect for himself and others. The two teachers required by the program are assigned to either a small group or a large group classroom. The activities that the children are exposed to in both classrooms are similar but the children are homogeneously grouped in respect to rate and level of learning in the small classroom and heterogeneously grouped in the large classroom. Children are taken four-at-a-time to the smaller room and introduced to new activities and games that are made available to them later in the larger classroom. The activities in the large classroom reinforce, extend, and expand upon what was learned in the small groups.

Evaluation and Follow-up

During the 1965-66 school year three matched groups of children were assigned to one of three groups: (1) an experimental group that received the Learning to Learn Program, (2) a control group that received a traditional preschool program, and (3) a second control group that received no formal training. Data collected at the end of the first year indicated that the children who attended the Learning to Learn Program scored significantly higher than the other two groups on 19 developmental measures which included the Stanford-Binet intelligence scale, Peabody Picture Vocabulary Test, and the Illinois Test of Psycholinguistic Abilities. The following year the three groups attended first grade in the public schools. Seventeen developmental measures including the Stanford-Binet, Wechsler Intelligence Scale for Children, Peabody Picture Vocabulary Test, and the Illinois Test of Psycholinguistic Abilities were again administered to the three groups at the end of the first grade. Fifteen of the 17 measures, indicated that the Learning to Learn group was still significantly superior in their performance when compared to the other two groups.

Since the It Works description of the program, follow-up comparisons for the three groups have been reported at the end of the second and third grades. Comparisons on the basis of the Wechsler Intelligence Scale for Children, Stanford Achievement Test, and the Illinois Test of Psycholinguistic Abilities indicated that the differences between the groups steadily decreased to the point that most were no longer statistically significant.

A new program began in 1968 when four new matched groups of children were assigned to one of the following groups: (1) a group of four-year-olds that will receive the Learning to Learn program for three years, (2) a group of four-year-olds that will receive a traditional preschool, kindergarten, and grade one program, (3) a group of five-year-olds that will receive the Learning to Learn program in kindergarten and first grade but will attend a traditional second grade class, and (4) a control group of five-year-olds that will receive traditional kindergarten through grade-two instruction. One of the primary purposes of this new study is to determine if an extended Learning to Learn experience, two years for the experimental five-year-olds and three years for the experimental four-year-olds, will be more beneficial and lasting in its effects than the earlier one-year program. The results to date indicate that the Learning to Learn four-year-olds and five-year-olds have made significantly greater progress developmentally during the first two years of the program than their matched control groups.

Conclusions

The Learning to Learn program has consistently been found to be superior to traditional training programs when comparisons are made immediately after one or two years of exposure. However, the only follow-up results reported to date indicate that the superiority of the

Learning to Learn children over matched control groups tends to wash out with the passage of more than a year without the special program. Final conclusions should, however, be reserved until the current study is completed and more follow-up data are reported.

Replications

The Learning to Learn curriculum materials are being used extensively throughout the country. The project director reports, however, that he is unaware of any complete replication of the program.

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PROJECT EARLY PUSH

BUFFALO, NEW YORK

History

Project Early Push has provided a preschool program to disadvantaged four-year-olds since 1966. The program is carefully designed to provide experiences which are basic to later reading success and which are usually missing in traditional preschool environments. Seventeen schools were involved in the program during the 1967-68 academic year. The program expanded to include 22 schools during the 1970-71 academic year.

Methodology

The distinguishing characteristics of Project Early Push include: (1) small well-equipped classes arranged into several interest centers, (2) a relatively unstructured curriculum, (3) an extensive schedule of field trips, (4) intensive parental participation, and (5) regularly scheduled inservice training. Each Early Push class is composed of approximately 15 children who are taught by a qualified teacher and teacher aide. Classes are well-equipped with furniture, housekeeping items, musical instruments, audiovisual materials, locomotor toys, woodworking equipment, and science materials. Instructional materials and equipment are arranged into interest centers which are periodically rearranged to correspond to current thematic units.

During the first and longest period of the day, children are free to select from the centers those materials and activities that interest them most. The teacher's role during the free activity period is to help the children capitalize on each potential learning experience. After this initial period which lasts up to two hours, children are provided with a snack prepared by the teacher and her aide with the assistance of the children. A short rest period follows the snack, then the children participate in one or more group activities for the remainder of the class time. Group activities include discussions, rhythmic and musical activities, group games, and listening to stories. In addition to classroom activities, the children are taken on many field trips designed to broaden their experience and interest.

Parents are encouraged to make classroom visits and to participate in classroom activities. Two parent-teacher conferences and two parent-teacher workshops are scheduled each year. A volunteer Parent-Council meets three times a year to discuss new directions and make recommendations for program improvement. Monthly, the program publishes and distributes a parent newspaper. Teachers and their aides attend inservice meetings on an average of two meetings per month. They also attend teaching demonstrations and talks by authorities in early childhood education.

Evaluation and Follow-up

As summarized in the It Works description, during the 1967-68 school year a random sample of children receiving the program made, on the average, an 11-month mental-age gain during their 7 months in the program for a mean IQ gain of approximately 10 points on the Peabody Picture Vocabulary Test. Since then, data have been reported for the 1968-69 and 1969-70 academic years. A random sample of the children during the 1968-69 academic year made a mean IQ gain of 5.7 points on the Wechsler Preschool and Primary Scale of Intelligence. That gain was found to be statistically significant. Full scale score gains and most subscale gains on a shortened version of the Wechsler Preschool and Primary Scale of Intelligence were found to be statistically significant at the end of the 1969-70 school year. Similar, though somewhat larger gains, were reported each year on the Peabody Picture Vocabulary Test; however, since the teachers themselves did the testing, the evaluator suggested that interpretation of the results be made with caution.

Conclusions

On the basis of the above data, it appears that the Early Push project is a continued success. Each academic year since 1967-68 the children in the program have made intelligence test gains that, when tested, have been found to be statistically significant.

Replications

Early Push has received many requests for information; however, the program director is not aware of any attempts to copy the program.

References

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AMELIORATIVE PRESCHOOL PROGRAM

CHAMPAIGN, ILLINOIS

History

A highly structured language, arithmetic, and social studies curriculum for preschool, disadvantaged children was developed at the University of Illinois during the four academic years from 1965 through 1969. The program is no longer operational at its original site. A portion of the program, however, is being conducted in the public schools of Champaign, Illinois, and the curriculum is currently being field-tested at several Head Start centers throughout the country.

Methodology

The Ameliorative Preschool curriculum is characterized by (1) highly articulated math, language, social studies-science instructional periods, (2) grouping of children on the basis of ability, (3) a teacher-pupil ratio of 1:5, (4) hierarchical organization of subject-matter content, (5) positive reinforcement adapted to the needs of the learners, and (6) the use of a game format to facilitate effective learning. Children are placed in one of three ability groups on the basis of their IQ and one teacher is assigned to each group for all formal instruction. Each of these groups receives daily instruction in mathematical concepts, language arts, and social studies-science at a level adapted to their capabilities.

Concepts in each of the three instructional areas are introduced in a hierarchical order to enable children to build upon what they already know. To help the child internalize the ability and need to work for positive reinforcement, such reinforcement coupled with explicit remarks delimiting the reasons for praise is regularly provided. Game-like materials are often used to provide multi-sensory stimulation thought to enhance leaning. In addition to the three formal periods, some time each day is devoted to directed play, music, and snacks. During these activities the children are free to leave their group and interact with the children from other groups.

Evaluation and Follow-up

The original evaluation of the program was based upon a comparison of its effectiveness to that of a traditional preschool program. The results indicated that although the two groups were comparable prior to preschool, the Ameliorative group made a greater Stanford-Binet IQ gain during the preschool year. The Ameliorative group maintained that IQ advantage in kindergarten but at the end of the first grade, the two groups did not differ significantly in IQ. The California Achievement Test was also administered at the end of grade one. The Ameliorative group's reading, language, and arithmetic achievement was found superior to that of the traditional group. Also, while the traditional group scored below grade level on all three subtests, the Ameliorative group scored at approximately grade level on each. These results were detailed in the original It Works description of the program. Although further evaluation is in progress, no new evaluation reports have been released.

Conclusions

On the basis of the data indicating statistically significant achievement differences favoring the Ameliorative group at the end of grade one, it can be concluded that the Ameliorative curriculum more effectively prepares disadvantaged children for the demands of the regular classroom than does a traditional preschool curriculum. Data from the Head Start centers that are field-testing the program, when available, should indicate whether or not the success of the curriculum can be replicated at other sites.

Replications

The four Head Start sites that are field-testing the Ameliorative curriculum are located in Birmingham and Macon County in Alabama, and in Tallahassee and Wewahichka, Florida. Additional field-testing is also being conducted in Placquemine, Louisiana; Bristol, Florida; and Atlanta, Georgia.

References

None

LANGUAGE STIMULATION PROGRAM

AUBURN, ALABAMA

History

Ten weeks of language stimulation, based mainly on lesson plans and selected activities in the Peabody Language Development Kit, were provided for 32 disadvantaged first graders during the 1964-65 school year. These children were black, came from poor families, were two years below grade level in language development, and had a mean IQ of 75. The ten-week program was not repeated during that, or subsequent school years. Evaluation data for the program children and 32 matched controls were collected before and immediately after treatment. Follow-up data were obtained 20 months and again 34 months after treatment.

Methodology

Thirty-two children were removed from their classrooms for language stimulation sessions one hour a day, four days a week, for ten weeks. Two experienced primary teachers, each working with a group of eight children during consecutive hours, followed the detailed daily lesson plans in the Peabody Language Development Kit. They supplemented these lessons with stories and other Peabody activities selected from lessons beyond those which were covered during the brief program. The Peabody materials and supplementary stories emphasized the following language-related skills: classifying, describing, story-making, listening, remembering, counting, naming, and following directions. The matched control group remained in class where regular reading instruction was provided by regular first-grade teachers.

Evaluation and Follow-up

The experimental and control groups were pretested prior to treatment and posttested immediately thereafter. Additional posttests were administered 20 and 34 months after treatment. The evaluation summary in the original It Works write-up included a preliminary analysis of data from the 34-month posttest. Since then the data have been reanalyzed and the results are summarized below.

Both groups scored similarly on the pretest battery which included the Stanford-Binet intelligence scale; the Illinois Test of Psycholinguistic Abilities (ITPA); and the Lee-Clark Reading Test, Grade One. However, on the immediate posttest the stimulated group scored significantly higher than the control group by 7.2 points in IQ (Stanford-Binet) and by 11.5 points in language age (ITPA). Without further stimulation, the experimental group continued to develop at a rate comparable to the control group maintaining their lead on the 20-month and 34-month administrations of the Stanford-Binet and the ITPA.

Effects of the program on reading achievement were much less impressive. Experimental and control group means were similar at pretest and immediate posttest on the Lee-Clark, with both groups gaining three reading-grade months during approximately three months between testings. On the 20-month and 34-month posttests, the experimental group scored significantly higher than the control group on the California Reading Test (Total Reading) and on subtests of the Durrell Analysis of Reading Difficulty. However, both groups were below grade by several months on these measures. Furthermore, gains over the intervening 14-month period were minimal for both groups.

The children were fourth graders at the time of the 34-month pretest. They were tested again as sixth graders; however, analysis of these data has not been completed as of this writing.

Conclusions

On the basis of three years of data summarized above, it can be concluded that the ten-week Language Stimulation Program was successful in increasing the IQ and language age of disadvantaged first-grade children. Furthermore, these gains were of a magnitude and permanence to be considered educationally as well as statistically significant. The impact of the brief program on reading achievement was negligible; experimental children were not making normal progress, just better progress than their matched controls.

Replications

The program director reported that he has received about 200 requests for information about the Language Stimulation Program in the two years since the It Works write-up. However, the only implementation of which he was aware was the use of his language stimulation model by the New Orleans Education Improvement Program until it ended in 1969-70. He concluded that the efficacy of the language stimulation activities could not be determined since the children participated in many other Education Improvement Program components which could have contributed to improved ability and achievement test scores. Also, the intensity of language stimulation activities was believed to have varied considerably among teachers, and no differential analyses were possible.

References

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MORE EFFECTIVE SCHOOLS

NEW YORK, NEW YORK

History

In an attempt to design an educational system which would focus on prevention of academic failure, the More Effective Schools program was inaugurated in New York City in 1965. Since that time it has continued to grow with only minor methodological modifications from its 10-school beginning to 27 schools in 1970-71. The program has also been replicated at at least five sites throughout the country. Since the program was originally described in the It Works series, several additional evaluations have been made of it.

Methodology

The More Effective Schools program did not attempt to implement any radical curriculum innovations. Rather it attempted to improve the quality of a more or less traditional educational program through reducing the pupil-teacher ratio; offering more small-group and individualized instruction; providing remedial, tutorial, and enrichment instruction; extending instruction to prekindergarten and after-school periods; and encouraging teachers to employ innovative methods such as team teaching.

Prekindergarten children attended school for a half day; kindergarten children for a full day. Classrooms were arranged into interest centers and children worked in small groups each supervised by an adult. In grades one through six, as in the pre-elementary years, a major instructional emphasis was placed on language and communication skills. From first grade on, reading was heavily stressed.

Class grouping was heterogeneous to provide a wide variety of abilities, interests, and personalities. Within-class grouping, on the other hand, was according to levels of achievement in specific curriculum areas and according to special needs. Class size was limited to a maximum of 15 from prekindergarten through first grade, to 20 in second grade, and to 22 in grades three through six.

Evaluation and Follow-up

The first evaluation of More Effective Schools found no significant benefits accruing to program participants. As reported in the It Works description, however, this conclusion was reversed when the effects of student attrition were considered. In most subsequent evaluations, similar care had to be exercised in controlling extraneous factors as the superiority of program children over control groups has typically been quite small.

A comparison of gains made by program participants between October 1966 and April 1968 with gains made by appropriate controls produced statistically significant Metropolitan Reading Test differences favoring the program children. In four of the six program groups, student gains exceeded the month-for-month "norm" expectation while five of the six control groups fell below this level.

An independent evaluation of the 1968-69 school year examined third and fifth graders at all previously evaluated program (17) and control (8) schools using Metropolitan Achievement Test scores. The conclusion reached was that even the slight advantages program children had over their controls at grade three disappeared by grade five. Grade-equivalent gains over the year also fell below the month-for-month expectation for both program groups.

This same evaluation examined gains made on the Metropolitan Reading Test over a four-year period by experimental and control students initially tested at the beginning of grade two. At the end of the third grade, More Effective Schools pupils were ahead of the controls in both Word Knowledge and Reading but by the end of fifth grade, they had lost their advantage in Reading. Over the entire four-year period, gains were less than month-for-month.

A similar comparison was made of two-year gains from grade five to grade seven. At the time of the 1967 (fifth-grade) testing, the More Effective Schools children were nine months ahead of the controls in both Word Knowledge and Reading. This difference was statistically significant. In 1969 the advantage of the experimental pupils had dropped to five months and was not statistically significant. Gains for both experimentals and controls were less than month-for-month.

Conclusions

Data from the many evaluations which have been made of the More Effective Schools program support the conclusion that the program has been modestly successful in raising student achievement over that of control groups in matched schools. In all cases the differences have been small and, for the most part, gains have been somewhat less than month-for-month. While program children are clearly outperforming the norm for disadvantaged children, they are not consistently approaching the national norm.

Replications

The More Effective Schools Program has been replicated in Pittsburgh, Yonkers, Cleveland, Los Angeles, and Baltimore. Evaluation data for these replications were not available for review.

References

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INTENSIVE READING INSTRUCTIONAL TEAMS

HARTFORD, CONNECTICUT

History

Beginning in 1965-66, special three-teacher teams provided comprehensive reading instruction to underachieving pupils in three-hour morning sessions for ten-week cycles. Pupils, in groups of 15, moved from teacher to teacher, spending an hour each with specialists in three areas: (1) decoding, or phonics and word-attack skills; (2) basal reading, stressing vocabulary and comprehension; and (3) individualized reading. Students received instruction at the three special centers in the morning. In the afternoon they returned to their sending schools.

From 1965 to 1968, program methodology remained basically the same while the age groups varied -- grades three through five were served in 1965-66, grades four through six in 1966-67, and grades four and five in 1967-68. Beginning in 1968-69, the focus of the program shifted to earlier detection and prevention of potential reading disabilities, and from 1968 through 1970, only first graders were enrolled -- a total of 282 in 1969-70. Treatment remained essentially the same, with the exception of a change in the third component of instruction from individualized reading to visual and auditory perception.

Program students were evaluated in 1968-69 by pre- and posttesting with the California Reading Achievement Test. In 1968-69, one ten-week cycle was pretested with the Peabody Picture Vocabulary Test and posttested with the Primary Mental Abilities Test (PMA); the second cycle used the PMA as both pre- and posttest. In 1969-70, students were pre- and posttested with the Metropolitan Readiness Test.

Methodology

The instructional teams were composed of one reading specialist and two reading teachers who worked together to assess pupil needs and coordinate instruction in the three separate areas. Work in the decoding area emphasized letters, sounds, and the blending of sounds into words. Materials that were used to stress decoding skills or linguistics included the Sullivan, Merrill, Lippincott, and SRA reading series. The basal reading area was concerned with vocabulary development. Accordingly, activities involved oral communication and listening, discussions, storytelling, and puppet shows.

In 1965-68, the individualized reading area emphasized developing the student's interest and pleasure in reading. When first graders entered the program in 1968-69, the third area shifted to visual perception, and expanded to visual and auditory perception in 1969-70. In this area, training helped children develop physical coordination as well as comprehension and discrimination of basic forms and sound patterns.

In all areas, activities were geared to individual needs and designed to improve motivation and self-image by requiring active student response.

Evaluation and Follow-up

The summary of evaluation data presented here is limited to results of standardized tests. During the first three years of program operation, pre- and posttest results on the vocabulary and comprehension subtests of the California Reading Achievement Test (CRAT) were reported in terms of grade-equivalent gains. In 1965-66, students in grades three through five made statistically significant gains on both subtests of the CRAT, averaging on the total test about seven months gain in approximately ten weeks of instruction. In 1966-67, students in grades four through six gained one year on both subtests during an instructional period of ten weeks. The statistical significance of these gains was not reported. In 1967-68, fourth and fifth graders made statistically and educationally significant gains on both subtests and total CRAT scores. Gains of fourth graders on the total test were one year over the ten-week period, while gains of fifth graders were 1.5 years over the same ten-week period.

When the program was shifted to first-grade students in 1968-69, a different evaluation design was used for the two ten-week instructional cycles reported. Data were not reported on the third cycle. In the fall, the Peabody Picture Vocabulary Test (PPVT) was administered as a pretest and the PMA as the posttest. Mean mental age scores were derived from both tests, and a comparison of these showed an average gain of six months in mental age over the ten-week period, which was statistically significant. In the spring, students were pre- and posttested with the PMA, and mean raw score differences were reported as statistically significant for all groups. In 1969-70, the Metropolitan Readiness Test was used for pre- and posttesting; again, data were reported on only two of the three ten-week cycles. For the total group of students participating, the mean difference was reported as statistically significant.

Conclusions

On the basis of the standardized evaluation data reported, it can be concluded that program students in practically all of the groups tested from 1965 to 1968 made statistically significant gains as originally reported in It Works. Furthermore, in each year students in all groups made substantially better than month-for-month gains during the course of instruction. Program evaluations for 1968-69 and 1969-70 reported statistically significant gains; however, since no grade-equivalent gain scores were available, the educational significance of these results cannot be interpreted.

Replications

There have been many requests for information about the program, but no replications were reported.

References

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AFTER SCHOOL STUDY CENTERS

NEW YORK, NEW YORK

History

In 1964-65, 167 After School Study Centers (ASSC) located mainly in public elementary schools provided disadvantaged children in grades two through six with individualized remedial instruction in reading and arithmetic. The children, mainly brown and black, were selected for voluntary attendance at the Centers on the basis of one or more years of retardation in reading or arithmetic. By 1966-67, the program had grown to the point that 30,000 children were being served by the Centers -- 13,000 were receiving remediation in arithmetic and reading and the other children were involved in other ASSC components which included music, art, and health education; library training; and homework assistance.

The only component evaluated on the basis of cognitive achievement data was remedial reading for the years 1964-65 and 1966-67. In summer 1967, the program was decentralized. Over 30 Local Education Agencies now administer "splinter" programs and have autonomy in deciding to what extent ASSC will be implemented, supervised, and evaluated. To date, local administrators have not reported any evaluations based upon standardized achievement test data.

Methodology

Because ASSC evaluation was concerned mainly with assessment of the program's effects on reading achievement, the following description of methodology is limited to the remedial reading component. In 1966-67, half of the 950 teachers involved in tutorial activities provided remedial reading instruction. Each remedial reading teacher was responsible for 15 children whom she met from 3:00 pm to 5:00 pm, three times a week at her assigned Center. On the assumption that the needs of problem readers had not been met in the course of regular classroom instruction, ASSC teachers were encouraged to experiment with a wide variety of techniques, activities, and materials to find a remediation strategy suited to the needs of each child.

Typical ASSC activities included story-telling, reading, discussion, word-attack, vocabulary building, word games, choral reading, dramatization, and creative writing. SRA Reading Labs were the principal source materials used in remedial reading instruction. They adapted easily to the voluntary, and therefore erratic, attendance patterns at the Centers and could be used by children with various reading problems who were progressing at quite different rates.

Evaluation and Follow-up

Quantitative assessments of program effectiveness were based on pre- and posttest reading achievement data collected in 1964-65 and in 1966-67 on the Metropolitan Reading Test (MRT). These data were summarized in the It Works write-up of the program and they provide the most recent statistical analyses of the program's effects on reading achievement.

In April 1964, MRT pretest scores were used to match a sample of fourth-grade students enrolled in ASSC with a sample of fourth graders attending the same school but not enrolled in the program. The April 1965 MRT test scores for both samples were used to compute gains in reading achievement between pre-and posttests. A statistically significant difference in gains was found, favoring the ASSC sample -- they had gained one year in reading achievement while the untreated control sample had lagged behind the norm by two months. Furthermore, the vear gain by the ASSC sample was comparable to national norms for "average" children who, by definition, gain one reading grade for every year in school.

In 1966-67, all ASSC children were tested in October and April. No control group was identified. For ASSC children in grades two, three, and five, gains in reading grade-equivalent were greater than .7 year over the seven-month period between pre- and posttests. Gains by ASSC children in grades four and six were just at norm, .7 year. In the absence of control group data, ASSC reading gains were compared with projected norms for the disadvantaged school-age population, norms which are based on the assumption that disadvantaged children achieve at about two-thirds the level of non-disadvantaged children. Considered in this light, ASSC pupils showed statistically significant gains over expected posttest performance at each grade level -- second through sixth.

Conclusions

It can be concluded on the basis of 1964-65 and 1966-67 test data that the ASSC program produced statistically significant gains in reading achievement. The fundamental educational importance of these gains, however, would seem to depend upon the degree of improvement one feels a compensatory program should produce. On the one hand, ASSC children were making reading gains as fast as non-disadvantaged children over the same period of time, and they were gaining at a significantly faster rate than would have been expected had they remained untreated. On the other hand, if disadvantaged children are eventually to compete successfully with their non-disadvantaged peers, educational programs must enable them to make better than normal progress so that they will eventually catch up with their more advantaged peers and achieve at national norms. The authors of this report take the point of view that this program is only marginally successful.

Replications

As mentioned earlier, the ASSC program has been implemented in varying degrees by over 30 Local Education Agencies in New York City, but little documentation is available which provides program description or evaluation information. Other than these extensions of ASSC, which resulted from decentralization of program management functions, there was no further indication given that the program has been implemented elsewhere.

References

None

SELF-DIRECTIVE DRAMATIZATION PROJECT

JOLIET, ILLINOIS

History

The Self-Directive Dramatization Project operated on an experimental basis during the 1964-65 academic year at the Forest Park Elementary School, with research support from the U. S. Office of Education. The project was continued in Joliet for two more years, on a limited basis, without external funding. It was discontinued after 1967. The major purpose of the project was to improve reading ability and self-concept of disadvantaged youngsters via Self-Directed Dramatization in the classroom. The pupils in the study were predominantly black, disadvantaged, and from urban schools. The experimental group consisted of classes from grades one through four, with an average of about 26 pupils at each grade level. A control group matched for grade, sex, reading ability, and IQ was drawn from the same and a second similar school.

The Self-Directive Dramatization treatment consisted of having small groups of children dramatize stories they had read, each child portraying a self-chosen character. Such activities took place three to five times a week, during two, 3.5 month dramatization periods in the year. Otherwise, children in the experimental and control classes participated in regular school work. Students were pre- and posttested with the Gray-Votaw-Rogers Achievement Test and a specially devised self-concept checklist.

Methodology

The general hypothesis of the study was that the Self-Directive Dramatization experience would improve students' self-concept and reading ability. The dramatization involved more acting than reading, but was not an actual play, and no props or costumes were used. It was considered self-directive because children were encouraged to make their own decisions within a basic framework, with the teacher directing their activities as little as possible. A wide variety of high-interest reading materials were made available in the classroom.

The teacher started the activity by writing names of about five stories on the board and listing the characters in each. Children who wanted to read a certain story gathered in groups of five or six, the exact group size depending on the number of characters in the story. After the children had read the story aloud, each student chose a character he wished to play. The group then chose a leader who helped in organization and prompting and they then proceeded, without further rehearsal, to act out the story. The rest of the class served as an audience.

Evaluation and Follow-up

The only time that the Self-Directive Dramatization Project collected data on disadvantaged children was during the 1964-65 academic year. Sixty disadvantaged children at each grade level from one through four were matched in terms of grade, sex, reading ability, and IQ during that year. One half of each matched group, approximately 30 children, was assigned to the Self-Directive Dramatization treatment and the other half to the regular classroom or control treatment. The control group received no special reading instruction, and they remained in their regular classrooms throughout the evaluation. In place of their regular classroom reading instruction, the treatment group received the Self-Directive Dramatization treatment three to five times a week for a period of 3.5 months. Each treatment group received two, 3.5 month Self-Directive Dramatization sessions during the course of the year with the exception of the grade-one children who received only one session. Children in experimental and control groups were administered the Gray-Votaw-Rogers Achievement Test -- Reading and a specially devised self-concept checklist at the beginning and end of each treatment period.

Each treatment group made statistically significant gains in reading achievement during each treatment session ($p < .01$). Gains ranged from .42 to 1.14 grade-equivalent units, and at all grade levels the gains were greater than would be expected of average children in a regular classroom for a comparable period of time; i.e., .35 grade-equivalent units. When compared to the control groups at the end of the year, treatment children at all grade levels made reading achievement gains greater than those made by the control group children. These differences favoring the treatment group were all found to be statistically significant ($p < .02$). In addition to outachieving the disadvantaged control groups, all treatment groups except the grade-four group made grade-equivalent gains greater than would be expected of average children during a comparable period of time in a regular classroom. That is, with the exception of grade four, all treatment group gains were educationally as well as statistically significant.

Children in grade two were also administered the Spelling and Arithmetic subtests of the Gray-Votaw-Rogers Achievement Test prior to the beginning and at the end of the academic year. The treatment group gain, pooled across achievement areas, was found to be .26 grade-equivalent units greater than that of the control group. This difference favoring the treatment group was found to be statistically significant ($p < .05$). Since the grade-two mean gain was also found to be greater than month-for-month in the program, it can also be considered educationally significant. These same treatment group children were also posttested with the Reading, Spelling, and Arithmetic subtests of the Gray-Votaw-Rogers Achievement Test at the end of their third grade, one year after the treatment was terminated. The mean difference between the scores made on the tests at the beginning of grade two and those made at the end of grade three were computed. In each achievement area, Reading, Spelling, and Arithmetic, the gains made during the period were greater than those that would be expected of average children during a comparable period of time.

A self-concept checklist was completed by the treatment groups' teachers at the beginning and end of the treatment year. Comparison of mean pre- and posttest scores indicated that the children made favorable changes in self-concept at all grade levels. For all treatment groups there was a 70 percent decrease in the number of questions checked that indicated negative behavior.

Conclusions

On the basis of the data summarized above and previously described in It Works, it can be concluded that the Self-Directive Dramatization program was more effective than a traditional reading program in improving the reading achievement and self-concept of disadvantaged children in grades one through four. Nothing can be said, however, about the continued success of the treatment since the original program has been terminated and replication evaluation data are not available.

Replications

The project director reported many inquiries about the program. AIR received names of nine programs as possible replications. Each of these programs was sent a letter asking them to provide AIR with their latest evaluation reports. Four did not respond; two indicated no implementation of the project. Respondents in the following four locations reported implementation of Self-Directive Dramatization methods: Streator, Illinois; Waukegan, Illinois; Gallatin, Tennessee; and Nacogdoches, Texas. In all cases, the currently available evaluation data do not permit any reasonable inferences as to the effectiveness of the replications.

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PROJECT CONCERN

HARTFORD, CONNECTICUT

History

In September 1966 Project Concern began busing to suburban schools children randomly selected from city schools that had enrollments at least 85 percent nonwhite. Since 1966 the program has expanded and has been replicated in New Haven and Bridgeport, Connecticut. There are now about 1700 students and 100 schools participating in Project Concern. The program has been reevaluated since it was originally described in the It Works series but more recent evaluations have been incomplete and lacking in rigor.

Methodology

Project Concern consists primarily of two treatment components -- the busing of inner-city disadvantaged children to predominantly white, affluent, suburban schools and the use of supportive teams. The supportive teams are composed of one teacher and one volunteer mother from the target area. Their duties vary from school to school. The teacher team members sometimes serve as regular classroom teachers in the receiving schools. In other instances they provide remedial instructional services. The parent volunteers serve as paraprofessional teacher aides and ride with the children on the buses.

Evaluation and Follow-up

The original evaluation of Project Concern indicated that the experimental children in kindergarten through third grade showed significantly greater IQ gains than a control group. The reverse situation, however, was found with fourth-grade children, while no differences were found in the fifth grade. Measures of reading and mathematics achievement showed the same general patterns except that the control groups outperformed the experimental groups in both fourth and fifth grades.

A three-year summary evaluation was undertaken in 1970 which made use of existing test data. This evaluation was based on reading achievement only and examined grade-equivalent scores derived from six different reading tests. According to the author, useable test results were available for only 346 of the 752 children involved at that time in the Hartford Project Concern program. The study was further limited by exclusion of the 56 Project Concern children in grades six, seven, and eight.

Year-end comparisons made against national norms showed that Project Concern first graders were somewhat ahead of grade-level expectations. Second, third, fourth, and fifth graders were all behind grade-level expectations with the size of the decrement closely related to grade level ($r = .87$, $p < .05$, one tailed).

Some children had been in the program as long as three years and data indicate that these children were not as far behind grade-level expectations as one- and two-year participants. These figures, unfortunately, are contaminated by factors associated with dropping out and cannot be interpreted in the absence of pretest comparisons of those who dropped out against those who remained in the program.

Comparisons made against "validated inner-city" norms show that at the end of the fourth grade, program children were .11 grade-equivalent units less retarded than their inner-city peers (-1.12 vs. -1.23). At the end of the fifth grade, the difference was .39 grade-equivalent units (-1.04 vs. -1.43). The statistical significance of these differences has not been assessed.

Conclusions

The success of Project Concern in producing cognitive achievement benefits has not been convincingly established. Although there is some evidence that program participants are slightly ahead of an inner-city comparison group, the statistical significance of the difference has not been assessed. It is also possible that the observed post-treatment differences existed before the treatment began -- a possibility which has not been investigated.

Even if it is accepted that program participants are better off than their non-participating peers, the difference is too small to be considered educationally significant. What evidence there is suggests that Project Concern children are falling farther and farther behind the national norm.

If any academic achievement success is to be attributed to Project Concern, it would be primarily in the area of reading, primarily for children in earlier grades, and primarily for children who remain in the program for more than two years.

Replications

Project Concern has been replicated in New Haven and Bridgeport, Connecticut. Available evidence suggests that these replications are virtually identical to the Hartford program. Although both replications are sizeable, the only published evaluation covers just 25 children in two schools in Cheshire, Connecticut, a suburb of New Haven. Results from three administrations of the California Achievement Test over a 17-month period revealed that the Project Concern children were progressing at approximately the month-for-month expectation for average children in all three subtest areas and were significantly outperforming their inner-city peers.

References

Crane, T. A three-year summary of Hartford Project Concern. Hartford, Conn.: Bureau of Compensatory and Community Educational Services, Connecticut State Department of Education, October, 1970.

Levy, M. *A study of Project Concern in Cheshire, Connecticut, September 1968 through June 1970*. Cheshire, Conn.: Department of Education, August 1970.

ELEMENTARY READING CENTERS

MILWAUKEE, WISCONSIN

History

In 1966-67, Elementary Reading Centers in 15 schools offered remedial reading instruction to over 1000 children in grades four through eight. Students were selected from both public and nonpublic schools on the basis of reading retardation one or more years below potential. They received intensive instruction 30 minutes a day, five days a week, usually for one semester. Since then the program has extended services down to grade two, added two reading clinics for children with very severe problems, and added a resource teachers component to provide consulting services in reading to about 498 regular classroom teachers. In 1969-70, there were centers in 36 schools, staffed by 46 full- and part-time teachers, serving 2226 students.

Methodology

The Elementary Reading Centers use a diagnostic approach in identifying language skills deficiencies. Teachers select remedial materials and equipment, on the basis of diagnosis, that are appropriate for each student. A wide variety of materials is available for teachers to choose from, including books at high-interest, low-vocabulary levels, highly motivating educational games, workbooks, and audiovisual devices such as Language Masters and Tachisto-Viewers. Instruction usually takes place in small homogeneous groups of five to eight students.

Since 1969, six reading center teachers trained as reading resource specialists spend only half of their time on regular center duties and devote the remainder of their time to helping regular teachers at the school identify and use reading materials and techniques more effectively.

Evaluation and Follow-up

Evaluation of 1966-67 students was based on a pre-posttest design with no control group. Results on the California Reading Test (CRT) and the Wide Range Achievement Test (WRAT) showed gains of 6.4 months on the CRT and 6.9 months on the WRAT during five months of instruction in the first semester. Second-semester results showed gains of 7.6 months on the CRT and 8.9 months on the WRAT, in 7.4 months of instruction. On the basis of these data, the program was selected for the It Works series. New evaluation data published since the It Works description are not quite so encouraging.

In 1967-68 evaluation compared project and control groups on the Metropolitan Reading Test. No significant differences between groups were reported. In 1968-69, program and control groups in grades four through six were pre- and posttested with the Iowa Test of Basic Skills (ITBS), and again no significant differences were found.

In 1969-70, evaluation was conducted using selected groups of second and fourth graders who were pre- and posttested with the Cooperative Primary Tests (Word Analysis and Reading subtests) for grade two, and the ITBS and Metropolitan Achievement Test (MAT) Word Knowledge and Reading subtests for grade four. A comparison group of children similar in IQ and pretest scores, but who were not seen as having behavioral problems which contributed to their reading disabilities was also pre- and posttested. Second graders in both program and control groups made statistically significant gains, but there was no evidence of a significant difference between group gains. Since gains were not reported in grade-equivalent units, rate of gain cannot be computed and, therefore, educational significance of the gains cannot be determined.

At the fourth-grade level, students were pretested with the ITBS, and scores on ITBS subtests in Vocabulary and Reading were used in covariance analysis of MAT posttest data. There were no significant differences between groups, and educational significance of gains could not be computed because different pre- and posttests were used. Since second-grade and fourth-grade control pupils had lesser disabilities than children in the project group, the program evaluators felt that the equivalent performance of the experimental and control groups was an indication of program success.

Conclusions

The program was selected for the It Works series on the basis of the 1966-67 evaluation data which indicated that the students in the program made achievement gains greater than would be expected of average children in the regular classroom for a comparable period of time; i.e., a month of gain for a month of schooling. Since then, evaluation results have been less supportive of the program. For the following two academic years the program's students made gains no greater than comparable children who did not receive the treatment. In 1968-69, program children's performance was compared to a no-treatment group with similar IQ's and reading disabilities but with less severe behavioral problems. The program children made gains no greater than the comparison group did in the regular classroom. Although the program's evalutor considers this finding an indication of program success, it does not meet the criteria established for this study.

One of the major criteria used for It Works selection was that program children make achievement gains "greater" than would be expected of "average" children in a regular classroom for a comparable period of time. The Elementary Reading Centers met this criterion for success only in 1966-67. The program clearly failed to meet it in subsequent years. It is therefore concluded that the program is no longer successful.

Replications

The program staff reported an increase in requests for information during 1969-70, but there is no definite information indicating replications of the program elsewhere.

References

Milwaukee Public Schools. Reading Center (Evaluation of the 1969-70 Title I ESEA Reading Center Project). Milwaukee, Wis.: The Public Schools, Division of Curriculum and Instruction, Title I Office, 1970.

SCHOOL AND HOME PROGRAM

FLINT, MICHIGAN

History

The School and Home Program sought to raise the academic achievement and improve the study skills of disadvantaged, underachieving elementary school children. To achieve these goals, teachers assigned special reading materials and homework exercises to program children and guided parents in upgrading the children's home-study environment. The program began during the 1961-62 school year in two elementary schools, and involved 1100 students in kindergarten through sixth grade. By 1970-71, at least a dozen elementary schools in the district had implemented the program to varying degrees.

The It Works write-up summarized the only formal evaluation of the program's effects on reading achievement, and that was for the 1961-62 school year. The School and Home model was included in the national Follow Through evaluation, but at the time of this writing, no data had been released which permit further analysis of program effectiveness.

Methodology

The program's main component was parent and teacher involvement in the daily reading assignments and study habits of underachieving children. With few exceptions, parents were black and had very low incomes and quite limited educations. It was assumed that if they encouraged their children to do well in school and provided home environments which were conducive to good study skills, their children would improve their academic performance, attitudes toward school, and levels of aspiration. The desired role for parents was carefully explained in orientation meetings, teacher conferences, and in written instructions. Parents were asked to communicate positive attitudes to their children by reading with them, providing a quiet period at home for daily study, showing interest in their school work, and making sure they left for school each day rested, fed, and with the attitudes and materials needed to do their best.

Teachers, in addition to performing routine instructional duties, assisted parents and children in meeting program objectives. For example, they clarified these objectives for parents at meetings and conferences; they provided children with books and materials of appropriate difficulty levels; and they assigned the children daily reading exercises to be completed at home under the supervision of their parents.

Evaluation and Follow-up

The program's effects on reading achievement have not been formally evaluated by the school district since the first year of the program, 1961-62. During the fall of that year and prior to the beginning of the program, children in two "experimental" schools and in one "control" school were pretested with the Gates Reading Test. This test consisted of two subtests, Vocabulary and Comprehension. Five months later the Gates was readministered as a posttest. Data were analyzed for second and fifth graders at the three schools, and their gain scores from pre- to posttest were compared. For both grade levels on both subtests, differences in gains over the five-month period consistently favored the School and Home participants. Most of these differences were significant at the one percent level. According to test norms for the Gates, non-disadvantaged children gained one month in "reading age" for every month in school.

The educational significance of the 1961-62 results is attested to by the fact that over the five-month period between pre- and posttest, children in the two experimental schools generally gained more than five months in reading age. Children with whom they were compared did not make normal progress in reading achievement. Although no detailed statistical analyses were carried out the following year when an additional school joined the program, the district reported that the program appeared to be as effective.

Conclusions

Due to the absence of more recent evaluation data, conclusions regarding the effectiveness of the School and Home Program are based on the reading gains reported in 1961-62 and summarized in the program's It Works description. During that academic year the program's children made greater gains in reading achievement than an untreated and comparable group of children. The differences between the groups favoring the School and Home children were generally large enough to be statistically significant. The gains made by the program's children can also be considered educationally significant since their gains in achievement were greater than would be expected of average children in the regular classroom for a comparable period of time.

Replications

The program was extended to a third elementary school during its second year, nearly doubling program enrollment in 1962-63. In succeeding years, the program continued [illegible] expand, but the grade range of the service group remained the same. [illegible] the 1970-71 school year, children in kindergarten through sixth grade in more than a dozen schools were involved in the program. However, teachers were free to use the model in their own ways, and there was little time to supervise the actual extent of implementation. As mentioned earlier, the School and Home model is being further evaluated as part of the national Follow Through project.

References

Although no new documentation was available at the time of this writing, program philosophy and techniques are described in a new book by the director of elementary education for the Flint, Michigan, public schools:

Smith, M. B. Home and school: Focus on reading. Glenview, Ill.: Scott-Foresman, 1971.

PROGRAMED TUTORIAL READING PROJECT

INDIANAPOLIS, INDIANA

History

The Programed Tutorial Reading Project was first used in Indianapolis schools in 1965 but was the product of several years of prior research and development conducted at Indiana University. Use of the program, which employs nonprofessional tutors to provide a highly structured learning experience in reading for first-grade students, has expanded year by year and is currently employed by many school districts in a large number of states as an adjunct to regular reading instruction. Originally designed to supplement the Ginn Basal Readers, materials have been developed so that the Programed Tutoring approach may be used with other basal readers including the Harper-Rowe, MacMillan, and Follett series.

Many evaluations of the Programed Tutorial Reading Project have been conducted over the years -- most of them, however, using criterion-referenced or unstandardized tests. Despite this deficiency, the assembled data have been rigorously collected and provide virtually unimpeachable evidence in support of the program's success.

Methodology

Nonprofessional tutors, who range in talent and experience from paraprofessional teacher aides, to community volunteers, to junior high school students, are carefully trained to respond in precisely prescribed ways to student actions in a highly structured learning situation. Tutors work with individual students on a one-to-one basis for (usually) one or two sessions per day, five days per week.

The most basic lessons are concerned with sight-reading. Basic whole-word, phrase, and simple sentence reading skills are developed on a rote-memory basis through implementation of a program of specific tutor instructions which are conditional upon student responses. The instructions of tutors are intended to avoid negative reinforcement, but the instructional sequence is not designed to eliminate student errors. Students are encouraged to discover correct responses through consecutive redirection of their attention to troublesome words. Consistently repeated errors are not dwelt upon and are ignored when not corrected within a few repeated attempts.

An effort is made to complete each "lesson" with an error-free reading, but new material is introduced despite repeated errors (according to a prescribed schedule) in order to avoid discouraging the students.

Programs concerning comprehension and, subsequently, word analysis skills are introduced in a cyclic manner once specified, more-basic lessons have been completed.

Exact records of student progress are maintained on a daily basis. For this reason, it is possible for different tutors to interact with individual children each day without interfering in any way with the prescribed instructional sequences. While it was originally planned that the same tutors should teach the same children each day, this practice could not be implemented except with regular, full-time paraprofessionals. It was found that the effectiveness of the program was not reduced when a succession of tutors interacted with individual children. It was thus possible to use students and volunteers as tutors on a part-time basis.

Evaluation and Follow-up

The most complete evaluation of the Programed Tutorial Reading Project since the It Works description was conducted during the 1968-69 school year when data on experimental and control students were obtained for a nationwide sample of 17 participating school systems. All participating schools were asked to assign students in the lowest third of their first-grade classes in terms of reading readiness to either an experimental group that received tutoring as a supplement to their regular classroom instruction or to a control group that received only regular classroom instruction. All children were ranked in terms of whatever reading potential measures were available. Then, beginning with the lowest ranked child and proceeding up the list, children were alternately assigned to the experimental and control groups.

Pretest scores for experimental and control groups were not significantly different for any of the participating schools, but there was evidence supporting the probability that five of the schools had deviated from the prescribed assignment procedures and had placed the least able students in the tutoring groups. Five additional schools deviated in one way or another from the experimental design requirements (provided tutoring for less than a year, used a different tutoring program on the control group, confounded teachers with experimental treatments, etc.).

Posttesting employed the Ginn Pre-Primer, Primer, and 1st Reader Achievement Tests. Although these are not standardized tests, the fact that both experimental and control groups used the Ginn Basal Reader Series suggests that posttest comparisons based on these instruments are meaningful.

Analyses based on the combined Pre-Primer and Primer test scores showed statistically significant differences favoring the Programed Tutorial group for (1) the seven schools which met all requirements of the experimental design ($p < .001$), (2) the five schools which apparently allocated students to the experimental and control groups in a manner tending to favor the control group ($p < .02$), (3) the two schools which provided Programed Tutoring for less than a full year ($p < .05$), and (4) the one school which was in its second year of Programed Tutoring ($p < .001$).

When a composite of the Pre-Primer, Primer, and 1st Reader scores was used as criterion, the group of seven "conforming" schools and the one school in its second year of Programed Tutoring were the only ones showing statistically significant advantages for the tutored group ($p < .001$ and $p < .01$, respectively).

An analysis of individual schools (the analyses described above were based on groups of schools) revealed that the two largest differences were obtained for the two largest cities represented in the study. Four of the five statistically significant differences were obtained in school systems enrolling over 50,000 children. This finding is taken to imply that Programed Tutoring is most effective with disadvantaged children since the proportion of such children is larger in the large-city schools.

Conclusions

There is sufficient evidence to indicate that the Programed Tutorial Reading Project is indeed successful in helping certain kinds of first-grade children who are experiencing difficulty in learning to read. Differences in the extent to which different groups of children benefit from the program are large enough to suggest that selecting the right children for the program is very important. At the present time it appears that the poorer readers and the more disadvantaged children are likely to profit most. Further investigation of the relationships between learner characteristics and derived benefit should be undertaken.

Replications

The Programed Tutorial Reading Project has not been replicated in the true sense of that word. It has, on the other hand, been adapted to several different basal readers. It has also grown extensively by virtue of installation in a large number of schools across the country.

References

Ellson, D. G., Barber, L. W., & Harris, P. L. A nation-wide evaluation of Programed Tutoring. Bloomington, Ind.: Department of Psychology, Indiana University, December 1969.

SPEECH AND LANGUAGE DEVELOPMENT PROGRAM

MILWAUKEE, WISCONSIN

History

Since February 1966, the Speech and Language Development Program has provided language skill training to disadvantaged children with oral language deficiencies. The program has maintained its original character through the years. Only two major changes have been made, namely, an expansion in size and some shift in target population grade-level. Program expansion is reflected by the increase in therapeutic staff from the original 3.5 in 1966 to 21 speech therapists in 1970. Originally serving grades one and two, the program began to include grade three children in 1969-70. Since 1969-70, however, the program has limited its services to children in kindergarten and grade one.

Methodology

The primary objective of the program is to increase the verbal and conceptual ability of disadvantaged students with language deficiencies through speech and oral language skills training provided by speech therapists. Children in Title I schools are rank-ordered on the basis of their oral verbal ability. From the lower 85 percent of that ranking, students are randomly selected for the program. The selected children meet with speech therapists for 45 minutes per day, four days a week for 15 weeks. Instruction is provided in small groups, ranging from six to eight children. The curriculum is rich in verbal and auditory stimuli and provides many opportunities for manipulative and play experiences. In order of importance, the chief activities during any session are talking, listening, and manipulating. The focus of instruction is on auditory and visual decoding and memory; association; and vocal and motor encoding. Activities related to these areas are arranged into very specific lesson plans that provide the therapist with guidelines and suggestions for instruction. Materials and equipment used during the language development sessions include specially selected books, charts, filmstrips, records, Language Masters, and the Peabody Language Development Kit.

Evaluation and Follow-up

The Speech and Language Development Program has been evaluated annually since its inception. During its initial developmental period from February to May of 1966, the project children had a mean gain on the Ammons Quick Test of Verbal-Perceptual Intelligence greater than that of a comparable no-treatment group; however, the difference between groups failed to reach statistical significance. In 1966-67 the group served the first semester made a gain on the Ammons Quick Test that was greater than the matched control group gain, and they maintained that statistically significant difference when both groups were retested four months after completion of treatment. The group that received the treatment the second semester made a gain greater than a matched control group, but the difference was not statistically significant. On the basis of these data, the program was considered a moderate success and was described in the It Works series. Data released since then have been less encouraging.

In 1967-68 project and comparison group performance was compared on the basis of the Ammons Quick Test, attendance, and teacher ratings. Posttest measures were adjusted by multiple regression and covariance for initial differences between the groups in IQ and attendance. No significant differences were found between project and control groups on any of the criterion measures. A multiple regression analysis of first semester 1968-69 pupil achievement on the Illinois Test of Psycholinguistic Abilities revealed no significant differences between project and comparison pupils. Similarly, at the end of the second semester, the two groups were found not to differ significantly on a locally devised attitude scale. Kindergarten children that received the treatment during the 1969-70 academic vear made statistically significant gains on the Peabody Picture Vocabulary Test and the Milwaukee Public Schools Language Development Scale. These same children were compared to disadvantaged pupils that were not eligible for the program (i.e., the upper 15 percent ranking in oral language ability) and made larger gains on the Peabody Picture Vocabulary Tests. The difference between the groups, however, was not found to be statistically significant. The program evaluators considered this finding positive since the children in the program had greater language disabilities than the comparison group and yet their gains were equivalent to that group.

During the first semester of the same year the Speech and Language Development Program was compared to two other language development approaches -- the Bereiter-Engelmann approach (see Academic Preschool description in this section of the report) and a "manipulative approach" which used a variety of manipulative and tactile materials to stimulate oral language. Children who met the program's selection criteria were randomly assigned to one of the three treatment groups. On the basis of the Milwaukee Public Schools Language Development Scale, all three groups made a statistically significant gain in language ability. When the three groups were compared to one another on the same scale and the Ammons Quick Test, no evidence was found that any of the three treatments was more effective than the others. However, when the same type of evaluation was repeated during the second semester, the "manipulative" approach was found to be superior to the Speech and Language Development Program's approach on the basis of a statistically significant difference between the groups on the Cooperative Primary Test -- Reading.

Conclusions

This program was considered only marginally successful when initially selected for the It Works series. Since the 1966-67 data were reported, the program has generally not been found to be more successful than a comparable no-treatment condition or to indicate that the children in the program make gains in language ability greater than would be expected of "average" children in a comparable period of time in the regular classroom. No statistically significant differences between the program and control groups were found during the four semesters between 1967 and 1969. During the 1969-70 academic year, statistically significant gains were reported for kindergarten and grade-one students; however, the data were reported in such a manner that the educational significance of the gains could not be determined.

On the basis of the findings described above, it is concluded that there is not sufficient evidence to consider the program either a success or a failure. Perhaps future evaluations will permit such a determination.

Replications

The project director indicated that there have been a considerable number of requests for program information; however, she is unaware of any "replications." A partial list of people that requested information from the program was provided to AIR. All 18 people on the list were contacted via the mails. Only seven replies were received, and none of them indicated any plans for replication.

References

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MALABAR READING PROGRAM FOR MEXICAN-AMERICAN CHILDREN

LOS ANGELES, CALIFORNIA

History

Innovations in teaching methods and curriculum were used to improve the reading achievement of disadvantaged Mexican-American children in grades one through three at Malabar Street School. The program began as a pilot preschool language development project in 1964-65 and was later also made available to several primary grade classes in response to the requests of interested teachers. Thus, along with a continuing preschool enrollment, the number of participating primary classes increased each year as more teachers gained training and experience in program methods. By 1969, all children in preschool through grade three were in the program.

Evaluation was based mainly on Stanford Achievement Test Reading subscale scores obtained in the course of the annual, State-required testing program. Reading achievement was not evaluated for the 1969-70 school year, and the program officially ended in August 1970 when it failed to receive continued financial support.

Methodology

Essential features of program methodology were the same, regardless of grade level. Students were guided to discover the structure of oral and written language tasks before performance was required or before skills were taught. Resourcefulness was encouraged by providing children with many opportunities to engage in self-regulatory, self-teaching behavior. At the preschool and kindergarten levels, oral language development and pre-reading skills were emphasized, with considerable time spent in one-to-one conversation between child and teacher or parent aide. In the primary grades, oral language development activities were continued, but most class time was devoted to five categories of activities: writing, word discrimination, phonics, comprehension, and self-teaching. These categories of activities were provided in the context of special classroom grouping arrangements which consisted of three "stations," each attended by one-third of the class.

At Station I, the teacher worked with each child individually as he wrote a story or read a book. At Station II, each student worked alone on an assigned task (e.g., a phonics, writing, spelling, or vocabulary-building exercise), assisted when necessary by a fellow student and monitored occasionally by the teacher. Finally, at Station III, students engaged in free reading activities, educational games, and explored a wide variety of self-instructional materials of various difficulty levels.

Program materials included bilingual books and special phonics exercises prepared by teachers to supplement commercially available items.

Additional components designed to motivate children to improve their reading achievement were the involvement of parents in instruction and program planning and the provision of cultural activities related to Mexican customs, dance, poetry, and song.

Evaluation and Follow-up

For the school years 1966-67, 1967-68, and 1968-69, reading achievement of program children in the State-wide testing program was compared with 1966-67 test data as a measure of program effectiveness. Thus, each year mean raw scores of program children in grades one through three on the Stanford Achievement Test -- Reading (SAT) were compared with those for the 1966-67 baseline-group children who had received very little, if any, treatment. For all three years and for all three grade levels, reading achievement on the SAT significantly improved following the introduction of the program. Also, the percentage of program pupils whose scores placed them in the third stanine or above on the SAT norms increased steadily over the three-year period. These were the last results described in the It Works program summary.

The 1969-70 program evaluation was performed by Ultrasystems, Inc., a management-consulting firm. Under their contract with the Los Angeles Unified School District, Ultrasystems provided an educational audit and evaluation of program management, resource utilization, curriculum planning, inservice training, and other procedures. Their conclusions were based on observations, questionnaires, surveys, and interviews with program administrators, research staff, teachers, parents of program children, and members of the community. Their report also included a replication plan for elementary schools to use in implementing and evaluating a similar program; however, no analyses of 1969-70 SAT data were provided to indicate whether or not the positive three-year trend in reading achievement had been maintained.

Conclusions

In summary, based on data from the spring testing programs in 1967, -68, and -69, children in grades one through three at Malabar Street School consistently improved their reading achievement. Each year, gains were greater than 1966-67 baseline data and were found to be statistically significant. It can therefore be concluded that from 1966-67 through 1968-69 the program met its stated objective of improving the reading achievement of target children.

Replications

No information was provided to our project staff which indicated that the Malabar Reading Program has been replicated in other elementary schools, either within or outside of the Los Angeles Unified School District.

References

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PLUS PROGRAM

BUFFALO, NEW YORK

History

Remedial reading and mathematics, field trips, and pupil personnel services have been made available to educationally disadvantaged children in Buffalo's public and parochial elementary schools since January 1966. During the 1966-67 academic year, 29 public and 24 parochial schools were involved in the Plus Program; the number of schools increased to 47 public and 25 parochial in 1967-68 and decreased to 29 public and 20 parochial schools during the 1968-69 academic year. The remedial reading component of the program was restricted exclusively to parochial students in 1968-69; however, in 1970-71 the public school students were again served by that component. Evaluations for the 1966-67 and 1967-68 school years were summarized in the It Works description of the program. Since then, the 1968-69 evaluation results have been released.

Methodology

The four primary components of the Plus Program are (1) remedial reading, (2) remedial mathematics, (3) field trips, and (4) pupil personnel services. The remedial reading and math programs are quite similar: they both accept students one or more years behind grade level in their respective remedial area; children for both components are recommended by the school's principal with the assistance of the classroom teacher and special reading or math teachers; they diagnose referred children's problems and tailor remediation to their needs; special remediation teachers provide daily small-group remediation for 30 to 45 minutes outside the regular classroom; and remediation specialists assist the regular classroom teachers in diagnosing reading and mathematics problems and in improving their classroom reading and mathematics programs.

Both remedial components also have a materials-centered approach. A wide variety of commercial audiovisual manipulative materials are supplied to each remedial teacher. Teaching aids such as filmstrips, overhead visuals, special remedial texts, teaching games, and tape recorders are present in each remedial class. Finally, both remedial components attempt to narrow the range of achievement in the classroom through special remedial classes for those that require it and through assistance to the regular classroom teacher in the areas of math and reading.

In an attempt to interest children in their community, make them aware of the environment, and help broaden their experiences so that they may achieve on a level more comparable to their advantaged peers, a field trip component was included in the Plus Program from its very beginning. A field trip guide that lists places to visit according to grade level, size of group, days available, time of tour, length of visit, whether guides are provided, the person to contact, and special instructions was prepared and is distributed to teachers and administrators. Trips were selected to have a definite relationship to some area of the curriculum being studied and to strengthen the instructional program. Each class takes two trips each semester or four trips each year. Parents are included in the trips when possible.

The pupil personnel services of the program consist of psychological guidance and social work services that complement the usual school program. The goal of these pupil personnel services is to assist regular school staff as well as parents to meet the needs of pupils and thereby aid in the development of self-supporting and contributing members of society.

Evaluation and Follow-up

As summarized in the program's It Works description, during the 1966-67 academic year a representative sample of the program students made an average of 8.9 months gain in reading achievement in the 7.5 months between testings on the California Reading Test and a 7.3 month mean gain in math achievement during the 7.5 months between testings on the California Arithmetic Test. A similar sample of students was administered the same tests during the 1967-68 school year. In terms of reading achievement, only grades three, four, five, and six made reading gains of better than a month for a month in the program, while grades two, three, four, five, six, and eight made similar gains in arithmetic achievement. The grade levels that made these educationally significant gains represent approximately two-thirds of the pupils in the program.

Standardized achievement tests were not used as the vehicle for evaluation during the 1968-69 academic year. Rather, teacher questionnaires were administered to the program's teachers at the end of the school year. Questionnaire results indicated that almost 100 percent of the teachers rated reading and math program effectiveness, pupil and parent interest, and student improvement as good or excellent.

Conclusions

Data reported for the program years of 1966-67 and 1967-68, indicate that the Plus Program was generally successful in improving the reading and mathematics achievement of disadvantaged children. The program appears to be most effective in grades three, four, five, and six where in 1967-68 the reading and math achievement gains were greater than what would be expected of average children in the regular classroom for a corresponding period of time. Since evaluation results in terms of standardized achievement test scores were not reported for the 1968-69 school year, conclusions about the continued success of the program can not be made.

PLUS PROGRAM

BUFFALO, NEW YORK

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Replications

The program director reported that he has received numerous requests for information regarding the program but he is unaware of any formal replications.

References

Buffalo Public Schools. Elementary and Secondary Education Act Title I evaluation, 1968-69. Buffalo, N.Y.: Division of Curriculum Evaluation and Development, 1969.

AFTERNOON REMEDIAL AND ENRICHMENT PROGRAM

BUFFALO, NEW YORK

History

Since 1966-67, the program's first full year of operation, remedial and enrichment experiences have been offered after school hours to children in grades two through eight. To be eligible for the program, children must be disadvantaged and achieving one or more years below grade level on standardized reading and arithmetic tests. Complementing the remedial component of the program are enrichment classes in art, music, physical education, industrial arts, library, drama, or science. The exact enrichment offerings have varied from year to year.

Since the description of the program in It Works, numbers of participating schools, children, and staff have changed somewhat; the remedial arithmetic component has been dropped, teacher aides have been employed to assist remedial reading teachers, and a home-school coordinator and community aide have been added to the staff. The only objective assessment of the program's effects on cognitive achievement was reported in the program's It Works description.

Methodology

As of 1968-69, the remedial arithmetic classes were dropped and emphasis was concentrated upon corrective reading. During the academic year, 1969-70, 2493 children in grades two through eight at 28 target elementary schools attended one remedial reading and one enrichment class weekly. Classes were held after school, three days a week, for five months. In remedial classes children were taught individually or in a small group by a remedial reading teacher, assisted by two aides. Remedial reading class-size ranged from 12 to 15. The presence of three adults in these classes reduced the size of instructional groups to four or five children per adult. Enrichment class-size was substantially larger -- from 20 to 30 children -- and the teacher was not assisted by aides.

The program's instructional staff consisted of regularly employed, fully qualified teachers who worked in the participating schools. A total of 136 teachers in 28 participating schools were involved in the program in 1969-70. Eighty-eight of these teachers were responsible for remedial reading instruction, each assisted by two aides. Teachers had autonomy in deciding which materials and techniques to use with each child and received a stipend with which to buy necessary materials not already available in the classroom. Emphasis was placed on highly individualized remedial reading activities and novel approaches to instruction which stimulated pupils' interest.

Extensive use was made of tape recorders, audio-filmstrips, educational games, and films. Inservice training was provided to teachers and aides prior to the opening of school, and weekly thereafter. In 1968-69 and 1969-70, a school-home coordinator and a community aide were hired to direct and improve parent participation in the program.

Evaluation and Follow-up

Since 1966-67, improved reading achievement has been a major program goal. However, 1966-67 was the only year in which standardized test data were used as evidence for program success. In November 1966, the California Reading Test and the California Arithmetic Test were administered prior to the start of the program. In April 1967, an alternate form of each test was administered as a posttest. At each grade level (second through eighth grades), project pupils made gains in arithmetic and reading which were equal to or greater than the time between testing. Across grade levels, the average gains during the five months between testing were five months in arithmetic achievement and six months in reading achievement. These gains were not compared with control group data, nor was their statistical significance reported.

In 1967-68, 1968-69, and 1969-70, evaluation data consisted of various combinations of the following: observations, interviews, study of reports submitted to administrators by project staff, reviews of program methodology, and parent, teacher, and aide questionnaires. Unfortunately for the purposes of this report, these data were not supplemented by objective evidence of improved cognitive achievement. In April 1970, an outside evaluator recommended that some form of pre-posttesting be considered for future evaluations.

Conclusions

The only objective evidence of the effectiveness of the Afternoon Remedial and Enrichment Program is limited to standardized test data for the 1966-67 academic year. During that school year, children on the whole made better than normal progress in reading achievement and normal progress in arithmetic achievement. In this context, normal progress amounts to a grade-equivalent gain of one month for every month between pre- and posttest and corresponds to the amount of gain expected of "average" students in regular classes over a comparable period of time. The statistical significance of these gains was not reported.

Replications

The superintendent of schools reported that many requests for program information have been received. However, he is unaware of any replications of the program.

References

Buffalo Public Schools. Final evaluation report: Afterschool Plus Program, 1968-69. Buffalo, N.Y.: The Public Schools, 1969.

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AUGMENTED READING PROJECT

POMONA, CALIFORNIA

History

Since 1966 the Augmented Reading Project has provided a program of remedial reading instruction, classroom reading support, and cultural enrichment to disadvantaged youngsters with reading difficulties. During the first two years of its existence the program served children in grades one through three. In 1968, grade coverage was extended to include children from kindergarten through sixth grade. Although curriculum changes have been made, the program has maintained its basic character through the years.

Methodology

The Augmented Reading Project consists of four major components: reading augmentation, classroom support, cultural enrichment, and community activation. Reading augmentation, in the form of remedial reading services, is provided in classrooms and special reading rooms. Initially, classroom teachers received remedial reading inservice training and provided remedial services to the children in their classes. More recently, instructional aides with specialized remedial training have been sent to the classroom to relieve the teachers of their remedial reading functions. Children with more severe reading difficulties receive special remedial instruction individually or in small groups from remedial reading specialists. This more intensive remediation activity takes place in special reading rooms. Bilingual specialist teachers have been recently added to the staff to assist children with English-Spanish language problems.

The classroom support component initially consisted of the provision of classroom aides and special materials to each teacher. This component later evolved into the classroom remedial reading program described above. During the first year of the program the cultural enrichment component consisted of lessons in music, art, literature, and library skills in combination with field trips. That component has evolved into an intergroup experience component which consists of cultural heritage studies, inter-school visitations, and cultural field trips. The program's community activation component attempts to improve relations between home and school through the provision of study sessions and conferences attended jointly by parents and school staff. In addition to the components described above, the program added a remedial mathematics component during the 1969-70 academic year.

Evaluation and Follow-up

As reported in the program's It Works description, during the 1966-67 school year the children in the program made a reading achievement gain of approximately nine months in the six months between testings on the

Wide Range Achievement Test -- Reading. In 1967-68, the pupils in the program gained an average of 4.5 months in a period slightly less than 4 months on the same achievement test.

New evaluation data have been reported for the 1968-69 and 1969-70 academic years. In 1968-69 the performance of the Augmented Reading Project children was compared to a group of middle-class children with similar reading difficulties. Children from both groups in kindergarten were pretested and posttested with the Metropolitan Readiness Test (MRT) and the gains in readiness between testings were comparable for both groups. Grade-one children were pretested with the MRT and the difference between the two groups on total MRT score was not found to be statistically significant; however, three subtest differences favored the program children and three other subtest differences favored the middle-class group. The Stanford Reading Test (SRT) was administered as the posttest for the first-grade children. The disadvantaged children were found to score significantly higher than the middle-class children on SRT total reading score. The SRT was administered as the pre- and posttest in grades two through six. In grade two, significant differences on the pretest favored the comparison group; however, posttest differences between the groups were not found to be statistically significant. No significant difference between groups was found in grade three on the pretest; the posttest difference in SRT total reading was statistically significant and favored the program children. In grade four, the disadvantaged children achieved higher pre- and posttest scores on the SRT than did the middle-class group and their mean raw score gain on each subtest was greater than their more advantaged cohorts. No significant pretest or posttest differences were found between the groups in grades five and six. In summary, during the 1968-69 school year, the program children achieved at a level equivalent to or superior to the children from middle-class schools with similar reading problems.

Evaluation results for the 1969-70 academic year were again reported by grade level. At the completion of kindergarten, the median rank of program children approached or exceeded the 50th percentile on the Stanford Early School Achievement Test. On the Reading subtest of the Cooperative Primary Test administered at the end of grade one, program children fell between .4 and .7 grade-equivalent units below the norms. Grade two children were pre- and posttested on the Wide Range Achievement Test -- Reading (WRAT). In the five months between testing these children made grade-equivalent gains that were found to be statistically and educationally significant; i.e., gains of approximately 1.4 months per month in the program. The WRAT gains in grades three and four were statistically significant at some schools; however, only one school at each grade level made grade-equivalent gains of better than a month for a month in the program. In grade five only one of five schools made a statistically significant gain on the WRAT; however, in terms of grade-equivalents, three of the five schools made gains greater than the five months between testing. None of the schools reported statistically significant gains on the WRAT in grade six, but two schools reported gains that were greater than the time between testing.

Conclusions

On the basis of the results summarized above, it appears that the Augmented Reading Project was quite successful when it served children in grades one through three (1966-1968); however, when the program was extended to include children from kindergarten through grade six, the program's effectiveness in improving reading achievement was substantially reduced. During the first year of extension, 1968-69, the program children did as well as similarly handicapped middle-class children, but in general they never reached grade-level norms. In 1969-70, most gains did not reach statistical significance and only a few were educationally significant.

Replications

The program director reported that since the program was written up in the It Works series he has received many requests for program information. He is unaware, however, of any replications of the program.

References

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HOMEWORK HELPER PROGRAM

NEW YORK, NEW YORK

History

High school students helped failing elementary school children with their homework and tutored them in reading. The program began in February 1963 under the auspices of Mobilization for Youth, Inc. At that time, 110 tutors drawn from five high schools in the Lower East Side of New York City worked with 330 pupils from 16 elementary schools in the same neighborhood. Both pupils and tutors showed cognitive achievement benefits as a result of program participation in the only program assessment conducted to date using standardized achievement tests.

More recently the program was extended to help failing high school students making use of college student tutors. While making no significant methodological changes, the program has expanded considerably and, since 1967-68, it has been placed under New York Board of Education decentralized control. During the 1969-70 school year there were 154 Homework Helper Centers in operation throughout the City of New York as opposed to the 9 original Centers in 1963.

Methodology

Paid tutors from the tenth, eleventh, and twelfth grade work with students from the upper elementary grades who are selected by their teachers on the basis of their reading retardation and need for the development of independent work habits and study skills. It was hoped that the experience would prove rewarding to the tutors and would, coupled with the economic aid it afforded, motivate them to further academic attainments. It was also hoped, of course, that the tutees would be helped in developing the academic skills in which they were deficient.

Centers, each staffed by a regularly licensed master teacher, are located in elementary schools and make use of two or more classrooms, and in some cases, library and laboratory facilities. Tutorial classes are held in the schools from 3:00 to 5:00 pm, Monday through Thursday.

Tutors meet with one pupil per day and see each pupil they work with either once or twice a week. After exchanging greetings and having some refreshment, the tutorial session begins with a 40-minute period during which the tutor helps the pupil through any homework problems he may have. Reading occupies the next 30 or 40 minutes, making use of materials different from those normally available in the schools.

The third segment of the tutorial session is of approximately 20 minutes duration and is devoted to some type of creative activity such as writing, making tape recordings, making puppets or models, or making up scenarios. The remainder of the two-hour session is used for recreation. In most instances some sort of educational game is played.

Tutors are recommended by their guidance counselors and are selected on the basis of such criteria as attendance records, parental permission, school grades, geographic proximity, and economic need. Applicants may also be screened and referred by the local Community Action Agency.

The master teacher trains and guides the tutors and acts as a communication link between the tutors and their pupils' classroom teachers. Tutors are given initial orientation training for a two-week period and receive continuation training twice a month thereafter. They are provided with a specially prepared tutoring manual which presents information about the characteristics of the pupils to be tutored and how the tutoring should be done. It also includes a number of illustrative examples drawn from early years of the program. Finally, since a wide variety of instructional materials and equipment are available to the tutors, the manual explains how to use them.

There have been variations to the program as described above including the use of college students as tutors for both elementary school and high school pupils exhibiting a need for this type of help. There have been no evaluations of these variations in terms of possible cognitive achievement benefits. For this reason they are not described here.

Evaluation and Follow-up

An assessment was made during the first year of program operation of the cognitive achievement benefits accruing to both pupils and tutors as a result of their participation. A pretest-posttest model was employed and gains were compared against those made over the same time period by control groups. Short time intervals were used (five months for pupils and seven months for tutors) and sample sizes were not large. Even with these restrictions pupils receiving four hours per week of tutoring made significantly greater reading achievement gains than were made by the control group. Gains made by those receiving two hours per week of tutoring did not significantly exceed control group gains, however.

Gains made by tutors during their seven months of program participation were dramatic. Unadjusted grade-equivalent reading score gains for the tutors were more than double those made by the control group. The difference was statistically significant at the .001 level. When gains were adjusted for the assumed effects of taking the same test twice, gains made by the tutors were more than three times greater than those made by the control group and more than three times greater than the expectation based on national norms.

No evaluations of cognitive achievement benefits have been made since this initial study in 1963-64. Evaluations based on questionnaire and opinionnaire responses have been generally quite favorable.

Conclusions

While very few "hard" data are available to support the success of the Homework Helper Program, the reading achievement gains realized by both pupils and tutors during the one year they were assessed were large and both statistically and educationally significant. Since there have presumably been no significant changes made in the program treatment, it is likely that gains of comparable magnitude continue to be accrued. The still continuing expansion of the program may be taken as some indirect indication of its success.

Aside from reading achievement gains, the Homework Helper Program may have significant affective benefits for both pupils and tutors and may have a highly significant impact on the educational and vocational choices made by the tutors. Investigation of these hypotheses should be encouraged.

Replications

Inquiries have been received by the Homework Helper Program from all parts of the United States and from many foreign countries. Descriptive materials have been sent in response to these requests. New programs have been undertaken which employ similar treatment components. It would appear that these events were interrelated and that new programs have been modeled after the Homework Helper Program. There is, however, no direct evidence to support a causal relationship.

References

None

COMMUNICATION SKILLS CENTER PROJECT

DETROIT, MICHIGAN

History

The Communication Skills Center Project was initiated in 1965 under ESEA Title I funding to offer improved remedial reading diagnosis and therapy to disadvantaged children in the elementary and secondary schools of Detroit. It subsequently expanded and, during the 1966-67 school year, the program served 2053 children from 60 public schools and 362 pupils from 26 nonpublic schools. Since 1966-67, yearly funding cuts produced corresponding reductions in the services provided. In addition to a general reduction in staff, classrooms, etc., all service to junior and senior high school pupils was terminated.

In 1968 the large Title III Neighborhood Education Center (NEC) program was initiated in many of the same schools from which Communication Skills Center children were drawn. The meagre evaluation data available for the 1968-69 and 1969-70 school years are likely to be contaminated by the effects of the NEC program.

Methodology

During 1966-67 when the Communication Skills Project was at its peak, both elementary and high school pupils were served. For both groups of students, remedial reading instruction was preceded by diagnosis of individual student's reading difficulties. Diagnosis was made by a reading diagnostician based on biographical data, scores on a wide variety of tests, the student's grades, and recommendation of the social worker and psychologist.

Remedial reading instruction was provided in small classes (six to ten pupils per class). During the regular school year, elementary school pupils attended two 60-minute classes per week. High school students attended four 45-minute sessions per week. During the summer session most students attended one 60-minute class per day, five days per week.

Instruction was individualized to meet each child's special needs and a wide variety of specialized remedial reading materials and equipment was employed. Students were generally grouped according to type or extent of reading disability within a reasonable age range.

Counseling sessions were provided by the social worker or the psychologist for those students whose reading difficulties were determined to be related to underlying problems of personal or social maladjustment.

Evaluation and Follow-up

The 1968 It Works description of the Communication Skills Center Project summarized evaluation data for the 1966-67 school year. Although no tests of statistical significance were conducted it appeared that large and educationally significant gains had been made by senior high school students on the Paragraph Meaning subtest of the Stanford Reading Test and that slightly smaller gains (but still educationally significant) were made by junior high school students on both the Word Meaning and Paragraph Meaning subtests. These gains were of sufficient magnitude to believe that they would reach statistical significance if tested.

Results for elementary school students were not educationally significant and would probably not have been statistically significant had appropriate tests been employed.

The following year (1967-68), all services to junior and senior high school students were terminated and the number of elementary school students served was reduced. Treatment exposure of the students remaining in the program, however, was nearly doubled. In 1967-68 and subsequent years, the Gates-MacGinitie Reading Tests were used for program evaluation. Again, no tests of statistical significance were run but grade-equivalent gains were generally somewhat below month-for-month expectations. They are considered to be of little educational significance.

Conclusions

During the 1966-67 school year there was evidence that the Communication Skills Center Program was successful in producing educationally significant reading skill gains in junior and senior high school students. It did not appear successful for elementary school students.

In subsequent years the program was reduced in scope and limited to elementary school students. Although the exposure time of the remaining elementary school students to the program treatment was increased, there was no evidence that it produced educationally significant reading skill gains.

The program has now been taken over by the Neighborhood Educational Center program and has lost, or is in the process of losing, its separate identity.

Replications

Since it was originally described in the It Works series, many letters of inquiry have been received by the Communication Skills Center program. While it can therefore be assumed that it had some influence on other programs, it seems unlikely that any replications were undertaken. The impact of the program will probably be greatest on the Neighborhood Educational Center program which has subsumed it but it is still too early to assess this effect.

SUMMER JUNIOR HIGH SCHOOLS

NEW YORK, NEW YORK

History

Summer junior high schools staffed by regular school personnel have existed in New York City since 1960. Students who fail specific school subjects or who are retarded in reading take summer courses in the appropriate subjects. Enrichment and English as a Second Language instruction is also provided.

The basic program in reading and mathematics has continued with only minor modifications since originally described in the It Works series although administration has been moved to the local level with semi-autonomous school districts taking over some of the functions of the central authority in New York City. Federal funding has also been reduced and costs of the program are now borne primarily by the city.

Some form of evaluation has been made almost every year the program has been in operation but cognitive achievement benefits have not often been adequately assessed.

Methodology

The Summer Junior High School program encompasses remedial instruction in a wide variety of subject matter areas as well as enrichment and English as a Second Language programs. Its major thrust, however, is instruction in reading and mathematics for students who have just completed sixth, seventh, or eighth grade and are at least two years retarded in reading skills or who have failed in mathematics. Since these are the only instructional areas for which cognitive achievement measures are available, subsequent discussion will be limited to them.

The total duration of the Summer Junior High School program is five and one-half weeks. Four and one-half hour days are divided into three 90-minute periods devoted to intensive instruction in a single topic. Students may enroll for one, two, or three topics and classes meet five days per week.

In the reading program students are divided into four groups according to level of reading competency as measured by the Metropolitan Achievement Test. The first group is composed of those reading below grade 3.5. Ranges for the second, third, and fourth groups are 3.5 to 4.5, 4.5 to 5.5, and 5.5 to 6.9 respectively. Different materials and equipment are used for each group but in all cases instruction is primarily conventional and highly structured with detailed directives spelled out for every part of the 90-minute period. Guidance for the teachers is provided by a specially prepared Reading Handbook.

Regular mathematics program instruction is organized by grade level and is specifically designed to enable students to earn passing grades in courses they failed during the regular school year. (A Corrective Mathematics Program and a Pre-Algebra Program are also offered.) Instruction is conventional but less structured than in the Reading Program. Teachers are given autonomy to individualize instruction according to student needs.

Evaluation and Follow-up

Annual evaluations conducted by the New York Board of Education have been based on pre- and posttest scores on the Metropolitan Achievement Test. No control groups have been employed but grade-equivalent gains can be compared against expectations. The rather unusual practice of reporting median gains and numbers of pupils achieving gains of various sizes has been employed rather than the more conventional use of means and standard deviations.

The median reading gain reported for 1970 was .9 grade-equivalent units -- identical to the 1967 gain reported in It Works -- which far exceeds expectations for a five and one-half week treatment period. The median mathematics gain was .7 grade-equivalent units.

In 1969 an independent evaluation was conducted by the Center for Urban Education. Working with a sample of four schools, data were reported on a total of 313 students in the reading program. Comparison of pretest and posttest scores showed a mean gain of .7 grade-equivalent units. This gain was statistically significant at the .001 level and far exceeded the norm-based expectation. Gains in mathematics were also tested but only for the non-credit Corrective Mathematics Program. The mean gain for 118 students was found to be .6 grade-equivalent units and was also statistically significant at the .001 level.

Attitudes of pupils toward the program were found to be quite favorable as were those of the participating staff. Suggestions made by staff members over the years have been used to modify the program although, as mentioned earlier, modifications have been minimal.

Conclusions

On the basis of consistent findings over the years reported by the program itself, and in one case by an independent evalutor, it can be concluded that the Summer Junior High School program of New York City has been successful in producing educationally and statistically significant achievement gains in reading and mathematics. No information is available as to whether these gains are retained during the course of subsequent academic experiences.

Replications

A pronounced increase in requests for information about the Summer Junior High School program was experienced following its description in the *It Works* series. There is no evidence, however, that the program has actually been replicated.

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PROJECT R-3

SAN JOSE, CALIFORNIA

History

In 1967-68 the San Jose Unified School District in cooperation with the Education Division of the Lockheed Missiles and Space Company implemented a special program for disadvantaged, underachieving, eighth-grade students. The primary objective of the project was to improve the motivation and achievement of disadvantaged students by providing special math and reading instruction in combination with field trips and other activities designed to demonstrate the relevance of classroom learning to the solution of real-world problems. A second wave of eighth graders entered the program in 1968, and the first-year students went on to a newly developed ninth-grade R-3 curriculum.

In 1969, new State regulations required the project to include the entire seventh-grade population of the school in the program, rather than the original target group of eighth-grade underachievers. The program was forced to drop the eighth- and ninth-grade program temporarily in order to handle the new and larger seventh-grade service group. Plans were made to re-expand the R-3 program to the eighth and ninth grades as the seventh graders progressed through those grades in succeeding years. Other than the grade-level changes, the program approach has remained essentially unaltered since it began.

Methodology

R-3 students were mostly English-speaking Mexican-Americans, one or more years below grade-level in math or reading. Each morning for three periods they received R-3 instruction which included math, reading, and a special R-3 activity period designed to illustrate the relevance of classroom instruction to the solution of real-world problems. Commercially available materials were used in the math and reading classes; materials and activities associated with the special R-3 activity period were developed by Lockheed.

The special R-3 activities included the study of occupations, transportation, and modern technology. During each R-3 activity, children were exposed to the knowledge and skills associated with working in an area, and they were required to solve realistic problems that often occur in the areas. For example, students learned soldering techniques, followed written instruction, developed flow charts, and solved mathematical problems relating to cost-reduction analysis in connection with the study of Assembly Occupations. Field trips were also made to areas distant from the immediate community. These trips were highly structured and provided additional opportunities for students to see what the work-a-day world required of its active participants.

Evaluation and Follow-up

Evaluation was based on pre- and posttest reading and arithmetic scores on the California Achievement Test. In the program's first year, the eighth-grade R-3 students showed significantly greater gains in both achievement areas than a control group of underachieving students in a comparable junior high school. The overall rate of gain was about two months per month in the program. New data since the It Works description indicate that in 1968-69, the second wave of eighth graders showed better than month-for-month gains which in most cases were significantly greater than gains made by the control group. The rate of gain, however, was not as great as in 1967-68. The ninth graders who continued in the program from the previous year were not compared with a control group. Their rate of gain was approximately month-for-month during the ninth grade and better than month-for-month for the total two-year period.

The 1969-70 evaluation was confounded by the required change in treatment group composition and late funding of the program. Late funding resulted in a total treatment period of only four months. The seventh-grade students during those four months did show slightly better gains than a comparable control group; the difference, however, was not statistically significant.

Conclusions

Disregarding the confounded evalution of 1969-70, it can be concluded that Project R-3 was successful in improving the arithmetic and reading achievement of eighth-grade students for two consecutive years. Each year the R-3 students' gains were significantly greater than those of a control group and greater than those that would be expected from a group of average children in a regular classroom for a comparable period of time. The children who continued in the program through the ninth grade made less significant gains during the second year, but their average gain for the two-year period was better than month-for-month.

Replications

Many requests for information have been received by the program's staff. Although several schools have attempted to adopt single components of the project into their own programs, the only large-scale replication known to the project director was one that began in Central Point District 6 in Medford, Oregon, in 1970-71. One hundred students participated in a pilot R-3 type program which did not include the special R-3 activity component. Evaluation data were not available in time to be reported here.

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COLLEGE BOUND PROGRAM

NEW YORK, NEW YORK

History

The College Bound Program was initiated with the summer session of 1967 as a far reaching attempt to help disadvantaged students complete high school and enter and succeed in college. The program has remained essentially unchanged since it was begun. Well designed and executed evaluations have been made of the four summer sessions through 1970 and of the school-year programs through 1969-70. With but few exceptions cognitive achievement gains made from pre- to posttest have been both statistically and educationally significant for the summer sessions but not for the regular school year College Bound Program.

Methodology

The major thrust of the College Bound Program is that of intensifying and individualizing instruction -- primarily in English and mathematics. This theme is carried through in both the regular school year program and the summer sessions which are primarily attended by junior high school graduates the summer before they enter high school (i.e., entering ninth or tenth graders).

During the 1970 summer session, the school day was 4.5 hours (expanded from a three- to four-hour day the previous three years). The sessions ran five days per week for seven weeks. Formal group instruction was provided to classes of no more than 20 students and was limited to English and mathematics (as it was in earlier years). Time was allotted for use of the library and development of library skills. Individual counseling was also an intrinsic part of the program.

During the regular school year, a standard curriculum was followed except that class size for academic subjects was limited to from 15 to 20 students and two class periods each day were devoted to English. Pupils were grouped homogeneously according to ability level in each subject and were moved from group to group as required to maintain homogeneity. Special counseling, both group and individual, was employed extensively and was at least partially oriented toward encouraging students to develop higher academic aspirations and plans for achieving them. Cultural enrichment activities have also constituted an important component of the College Bound Program since its inception.

Evaluation and Follow-Up

Cognitive achievement benefits have been assessed separately for summer and regular school year sessions each year the program has been in operation. The only evaluation data available at the time of the It Works description covered the first (1967) summer session. The Stanford Achievement Test was used for all four summer sessions and grade-equivalent gains were calculated for Arithmetic Computation, Arithmetic Concepts, Arithmetic Applications and Paragraph Meaning. Gains were greatest on Arithmetic Computation ranging from 9 months in 1969 to 13 months in 1970. Arithmetic Concept gains were highly consistent, being seven months in 1967 and six months the remaining three years. Arithmetic Applications showed a one month decrement in 1969 (which was generally the least successful summer session) but exceeded the one to two month norm group expectation the other three years. Paragraph Meaning gains slightly exceeded expectations during the first two years of the program (three and four months respectively) but were at or somewhat below expectations in 1969 and and 1970 (one and two months respectively).

Results on the New York Regents' examination in mathematics, which was administered as a posttest, were also indicative of the success of the program. While difficult to interpret in the absence of grade-equivalent or gain scores, nearly half of the students passed at the ninth-, tenth-, or eleventh-grade level. Perhaps most interesting is the fact that an average correlation of -.57 was found between students' scores on the Regents' examination and the number of days they were absent from the program (computed by AIR by pooling the correlations reported for eight individual schools).

Cognitive achievement benefits attributable to the regular school year program were assessed by comparing the scores of College Bound students against those of appropriate control groups on the Metropolitan Achievement Test and the New York Regents' examination. Both experimental and control groups entering the program as ninth or tenth graders in 1967 were initially tested in the middle of the 1967-68 school year with the Reading and the Mathematical Computation and Concepts subtests. The same groups were tested with alternate forms of the same subtests at the end of the 1968-69 school year and with the originally used forms at the end of the 1969-70 school year. Since differences were found between the experimental and control groups on the pretests, analysis of covariance procedures were used to adjust posttest scores.

Both ninth- and tenth-grade 1967 entrants to the College Bound Program significantly outperformed their control group counterparts in terms of adjusted posttest scores on the Mathematical Concepts and Computation subtests administered in Spring, 1970. No difference between groups was found, however, in Reading. The only difference between experimental and control groups entering the program in 1968 was for the entering tenth graders on the Mathematical subtest. The ninth-grade experimental and control groups did not differ on this subtest nor did either ninth- or tenth-grade program students differ from controls in Reading Achievement.

None of the program groups, regardless of year of entry or grade level, outscored their control-group counterparts on any of the Regents' examinations. At all grade levels, mean performance on these tests was found to be below the passing level.

Conclusions

On the basis of evaluation data covering four College Bound Program summer sessions it can be concluded that the program is successful in producing both statistically and educationally significant benefits of cognitive achievement. Data covering two groups of regular school year participants showed only a few statistically significant differences between program students and controls. The regular school year program could not be considered successful in terms of cognitive achievement although there was some indication that it may have had a beneficial effect on school attendance. Published data do not enable determination of the long-term effects of the summer program but this matter can and should be investigated.

Replications

There are no known replications of the College Bound Program.

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EXPANDED LANGUAGE ARTS PROGRAM

BUFFALO, NEW YORK

History

Buffalo Public Schools initiated the Expanded Language Arts Program in February 1966. The primary goal of the program was to overcome language arts deficiencies at the secondary level which were detected during the district's standardized testing program. Since its first full year of operation in 1966-67, the program treatment has remained essentially unchanged. Student gains in language achievement that year were greater than the expected month-per-month for the ninth, tenth, eleventh, and twelfth grades. While success is still claimed for the program, the only more recent evaluation data currently available do not support this contention. These data cover only the eighth grade and indicate, as did the original data, that no significant benefits accrue at that grade level.

Methodology

The primary characteristic of the Expanded Language Arts Program treatment is reduction in class size to a maximum of 15 students, thus enabling teachers to individualize instruction in accordance with specific student needs. Emphasis is placed more on providing each student with as much practice as possible in speaking and writing than on formal study of grammar and punctuation. An attempt is also made to select learning activities relevant to the pupils' life situations.

Extensive use is made of audiovisual equipment such as tape recorders, overhead projectors, and films and filmstrips. Students use the tape recorders to practice verbal skills and to analyze their own strengths and weaknesses. Overhead projectors are used to enable group discussion of material written by individual students.

Both pre-service and inservice training is provided to the special teachers employed for the project. Teachers are closely supervised by the project administrator who periodically observes their classroom performance.

Evaluation and Follow-up

The initial evaluation conducted in 1966-67 employed a simple pretest and posttest design. There was no control group; rather, grade-equivalent gains were compared against established norms. The Sequential Tests of Educational Progress (STEP) and the California Language Test were employed. Program students made essentially no gain on the STEP test over the seven-month period between administrations, possibly because the test was too difficult. Gains made on the California Language Test, however, exceeded the seven-month expectation for the four high school grades, although gains for grades seven and eight were below expectations. These results were described in the It Works program summary.

An experimental versus control group design was employed for the 1968-69 evaluation. This evaluation, however, was limited to the eighth grade and was based on a small number of students. One hundred and six students in Expanded Language Arts classes from two junior high schools comprised the experimental group while 31 students selected from regular eighth-grade English classes at the same schools served as controls. The Language Arts portions of the Stanford Achievement Tests, Advanced Level, were employed as the criterion measure.

Pretest scores revealed that both the experimental and the control group were about one year behind grade level. At the end of the school year, both groups had made gains approximately equal to one grade-equivalent unit. The slightly smaller gain made by the experimental group was not significantly different from that made by the control group. A subsequent analysis employing a matched pretest feature did produce a statistically significant $\underline{t}$ ($p < .05$) favoring the control group but the analysis is difficult to interpret.

Conclusions

The original (1966-67) evaluation of the Expanded Language Arts Program indicated that it was successful in producing gains greater than month-for-month expectations in the language arts skills of high school students. The program was not successful with seventh- and eighth-grade students.

The only additional cognitive achievement data made available to AIR were collected in 1968-69 and encompassed only the eighth grade. Again, the program was found to be unsuccessful with eighth-grade students. No hard data are available to indicate whether or not the program continued to be successful with high school students.

Replications

A number of requests for descriptive information have been made to Expanded Language Arts Program personnel. There is no evidence, however, that the program has been replicated.

References

Buffalo Public Schools. Report on statistical evaluation of the Extended Language Arts Program. Buffalo, N.Y.: Division of Curriculum Evaluation and Development, June 1969.

SUMMER UPWARD BOUND

TERRE HAUTE, INDIANA

History

Summer Upward Bound is a pre-college program for disadvantaged high school students with academic potential. To motivate students to continue their education beyond high school, the program provides intensive instruction during summer sessions designed to equip students with the skills and knowledge needed to succeed in college. In the summer of 1966, 76 tenth graders attended an eight-week session held at Indiana State University. They were recruited with the help of community agencies, private citizens, and referring schools to participate in the program for three years. The series of summer programs was supplemented by follow-up programs during the regular school year. The program is still in existence; however, the last evaluation of the program was in 1966.

Methodology

The students live on the campus during the summer sessions and participate in a highly structured program of academic and extracurricular activities. The curriculum covers four basic areas: language arts, perceptual skills, mathematics, and study methods. During the first summer, students are required to take a common core of courses in preparation for the summer sessions. Later, they are allowed to elect some university courses or to participate in the university lab school program.

Instructional methods in language arts emphasize basic skills such as reading, writing, and grammar. SRA Reading Lab materials are used to increase the students' reading rate and comprehension, and they are given city and university library cards to encourage recreational reading. To help develop written expression, students keep journals in which they note personal experiences, reflections, and reactions to the program. IBM portable dictating units provide practice in accurate listening and verbal communication, and prepare students for development of note-taking skills which they need in later academic work.

Training in perceptual skills centers on perception of words and makes extensive use of audiovisual aids such as the tachistoscope. Mathematics classes are devoted primarily to arithmetic, with some work on "new math." Study skill instruction helps each student identify his own poor study habits and replace them with more efficient methods.

In addition to these four basic areas of instruction, the program provides physical education, various cultural activities, and counseling by full-time tutor-counselors.

Evaluation and Follow-up

1966 was the only year in which cognitive achievement was evaluated by standardized tests. At the beginning of the eight-week summer session, all students were pretested with the Differential Aptitude Test. At the end of the summer they were tested again with an alternate form of the same test, and their scores were compared to national norms. The average pretest score was at the 35th percentile and the posttest average was at the 46th percentile. Analysis of average change scores showed that the pre- to posttest gain was statistically significant.

Conclusions

Conclusions regarding the effectiveness of the Summer Upward Bound Program are limited to the 1966 evaluation covered in the It Works write-up since further evaluation data have not been released. The 1966 summer program resulted in statistically significant student gains in abilities measured by the Differential Aptitude Test. The educational significance of their gain is attested to by their mean posttest percentile rank of 46 -- almost average for non-disadvantaged children.

Replications

There were no known attempts to replicate the program elsewhere.

References

None

APPENDIX C

ERIC REPORT RESUME

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

ERIC REPORT RESUME

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ABSTRACT

This study was the third in a series that had as its primary objective the identification and description of successful compensatory education programs for pre-college disadvantaged children. Well over 1,200 programs were reviewed, 422 candidates were identified and 10 of the candidates were found to clearly demonstrate statistically and educationally significant cognitive benefits. To inform educators about successful programs and to provide them with sufficient information to decide if locally modified replication would be desirable, detailed descriptions of the 10 successes appear in the appendix.

A review of the budgets associated with the 10 successful programs resulted in the conclusion that the diversity and inaccuracy of budget reports obviated the development of a cost-benefit index by which programs could be compared. Review of successful program noncognitive benefit evaluations indicated that few valid and reliable instruments had been used, evaluation methodology was often weak, and there was little agreement as to what constitutes a significant noncognitive benefit.

The current status of 31 successful programs previously identified was summarized in a program profile. On the basis of new evaluation data, 9 programs were determined to be continued successes, 5 eventual failures, and no conclusions could be reached on the remaining 17 due to a lack of new data.

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